DOCUMENT RESUME

ED 168 139 EA 011 412

AUTHOR	Hamilton, David
TITLE	Classroom Research and the Evolution of the Classroom System. (Some Interim Papers.)
INSTITUTION	Glasgow Univ., Scotland. Dept. of Education.
SPONS AGENCY	Social Science Research Council, London (England).
PUB DATE	Dec 78
GRANT	HR/5127
NOTE	115p.; Not available in paper copy due to marginal legibility of original document
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Classes (Groups of Students); *Classroom Research; Educational Change; Educational History; Educational Philosophy; Educational Research; Elementary Secondary Education; *Grouping (Instructional Purposes); *School Organization; Self Contained Classrooms
IDENTIFIERS	Calvinism; Industrial Revolution; Scotland (Glasgow)

ABSTRACT

This study reports a preliminary investigation into the origins, assumptions, and practices of one of the most widespread innovations in schooling: the classroom system. Material for the historical study is drawn from sources in Glasgow, Scotland, where the combined influences of Calvinist theology, Scottish-French philosophy, and the industrial revolution created a solution to the emerging problems of mass schooling, which in the years that followed, was exported all over the world. The theoretical underpinning of the report is that the classroom system, like all educational systems, can best be studied as a form of production tied into the general productive systems of society. That is, it is a social and ethical mechanism for realizing, transforming, and distributing the cumulated experience of humanity. (Author/JM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED168139

BEST COPY AVAILABLE

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

CLASSROOM RESEARCH AND THE EVOLUTION OF THE CLASSROOM SYSTEM

(Some Interim Papers)

DAVID HAMILTON
Department of Education
University of Glasgow
Glasgow G12 8QQ
Scotland

December, 1978

The Research reported in this document was supported by public funds and administered through the Social Science Research Council, Grant No. HR/5127.

EA 011 412

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

David Hamilton

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

'Domestic education is the institution of nature,
public education, the contrivance of man'.

(Adam Smith, *The Theory of Moral Sentiments, 1759).*

CONTENTS

1. Some Unfinished Business.
2. Research Proposal.
3. The Changing Disciplines of Schooling (some preliminary considerations for the period 1790-1840).
4. The Emergence of the term 'Classroom' as an Educational and Architectural Idea in Glasgow.
5. Correspondence Theories and the Promiscuous School: Problems in the Analysis of Educational Change.
6. On Generalisation in the Educational Sciences.

* * * * * *

SOME UNFINISHED BUSINESS

The papers in this document report the work of the project. This introductory essay gives some background to the preparation of the papers and, at the same time, foreshadows future work.

The Changing Disciplines of Schooling was completed at the half-way stage of the research. It was written to try and digest some of the material collected up to that time. Without much difficulty it could be expanded three-fold and, as such, would pass as a respectable, but essentially antiquarian, account.

On reflection, I realised that the theoretical framework presented in its early pages needed considerable attention. Since March 1978 I have moved forward on two fronts. Part of my work has been taken up with a long and uncompleted march through the local sources; and part with efforts to locate such material geographically, historically and theoretically.

At a meeting of the Scottish History of Education Society in June 1978 I tried to defend the thesis that the period 1780-1840 coincided with some epochal changes in educational theory and practice. (At the risk of over simplification, I would interpret these changes as arising from a convergence of Calvinist Theology, the Franco-Scottish Englightenment, and the Industrial Revolution). The ensuing discussion suggested that I should be more cautious in my analysis. Since that time, I have returned to my original hypothesis with renewed conviction (and much more data). Nevertheless, since it is a fairly contentious idea and deserves further consideration, I have refrained from elaborating it in this report.

Instead, my writings have addressed a number of theoretical topics. Correspondence Theories and Promiscuous School: Problems in the Analysis of Educational Change tackles the issue (subsequently redefined as a non-issue) of the relationship between schooling and society (or production).

And On Generalisation in the Educational Sciences attempts to resolve a question which has exercised the minds of a great many historians since the second world war (see, for instance, Patrick Gardiner (Ed.) The Philosophy of History, Oxford University Press, 1974).

One intervention that allowed me the luxury of these theoretical detours was an offer (in April 1978) of a lectureship in the University of Glasgow, Department of Education. This appointment (from 1st October, 1978) has enabled me to extend my research and, hopefully, will enable me to produce a more considered report in a few years time.

Meanwhile it might be appropriate to indicate some of the substantial historical issues that need to be resolved before any coherent, defensible account can be produced.

1. It is sometimes assumed that the efficiency movement in education coincided with the growth of the factory system. This seems to be historically unsupportable. There is good counter-evidence to suggest that efficiency may have been an earlier theological justification (e.g. linking work and salvation). Either way, any study of the efficiency movement must look closely at the early days of capitalism and the rise of mercantilism.

2. Arising from the previous point, few British historians (if any) have commented on the similarity between Joseph Lancaster's writings on the monitorial system and the Conduct of Schools published a hundred years previously by De la Salle, founder of the Christian Brothers. According to French historians, De la Salle's system - like that of the Jesuits - was taken up by Protestant as well as Catholic reformers on the continent (see R. Chartier et al. L'Education en France du 16 ème au 18 ème Siècle, Paris, SEDES, 1976, chapter 4). Nevertheless its links if any, with the dissenting movement in Britain have still to be identified. Chartier et al. also maintained (p.138) that the educational ideas of De la Salle and Calvin can be traced back to Erasmus' Little Book of Good Manners for Children. (English translation, 1532) which, in turn, was very influential in England (see J. Simon

Education and Society in Tudor England, Cambridge University Press, 1966, p.67).

3. The intellectual connections between Scotland and France in the 18th Century also deserve further attention. One of the critical psychological/moral concepts relating to class teaching is that of 'sympathy' (cf. Stow's Sympathy of Numbers). As a moral concept sympathy was first brought to public notice in Adam Smith's Theory of Moral Sentiments (first edition, 1759). It is analogous to the French term "esprit de corps" which may have been popularised by French philosophers of the same period (Helvetius?). If 'sympathy' and 'emulation' are the psychological concepts that describe the relationship among the students of a class, 'attention' is the psychological concept that links the class to the teacher. These three terms were crucial to the emergence of the classroom system.

4. The educational significance of Robert Owen is another historical issue that still remains to be disentangled. His work is still viewed through the Fabian-tinted glasses worn by his early biographers. Further, Owen has been treated as a free-floated ideologue: there is very little that has been written about the formative influences exerted upon him by the commercial and intellectual circles of early 19th century Glasgow. In my view this is a serious lacuna. Owen was a pivotal figure - deeply embedded in commercial society but intellectually in much closer rapport with the philosophical and moral tenets of 'the Glasgow Men' (Professors Jardine, Miller, Mylne etc.).

5. David Stow also remains an enigma. Undoubtedly a crucial figure but, nonetheless, seemingly hidden from history. Much of the relevant material is probably buried in church records and in the records of the Sabbath Schools. (e.g. there are some letters - not yet examined - from Stow to Chalmers in the Chalmers Papers, New College Library, Edinburgh).

6. Finally, there is a great need to uncover material pertaining to the educational institutions of (rather than for) the labouring classes.

As noted in the research proposal, the analysis of historical material is a necessary but not sufficient condition for the completion of this study. The purpose of the investigation has been to throw more light on schooling and pedagogy, *in general*. To this extent, the final report will also incorporate a general theory of teaching, curriculum and learning in which material about various forms of schooling can be embedded. Without such a framework, the report will neither be truly historical nor validly educational.

Postscript

The Visitor's Book (1829-31) of the Glasgow Infant School Society that was thought to be missing from Jordanhill College library (see *The Changing Disciplines of Schooling*, note 71) has since been located. It is, in fact, indexed as a "Committee Book".

* * * * * * * * * * *

CLASSROOM RESEARCH AND THE EVOLUTION OF THE CLASSROOM SYSTEM

(Research proposal submitted by David Hamilton to the Social Science Research Council, April 15th 1977).

An important feature of successful educational innovations is that they are rapidly absorbed into existing realms of theory and practice. In the process, a new social order is created. The innovation is no longer noticed; its visibility disappears. As a consequence, each new generation of educationalists has the important task of rediscovering the historical dependency of its own theory and practice. The proposed two-year investigation is prompted by such a concern. It sets out to reconsider the origins, assumption and practices of one of the most widespread innovations in schooling - the classroom system.

This two-year proposal was eventually funded for a period of 12 months commencing 1st October, 1977 (Grant HR/ 5127). The investigation is based at the Department of Education, University of Glasgow, Scotland.

PROPOSED INVESTIGATION

Background

Over the last seven years my research interests have revolved around the theory and practice of contemporary schooling. I have examined the implementation of integrated science as a replacement for subject-specific science (1970-72); the re-organisation of small rural secondary schools along comprehensive lines (1972-74); the integration of visually handicapped pupils into ordinary schools (1974); and the initiation of a new Scottish open plan school (1975-76).

Despite their diverse origins, these inquiries reflected an enduring interest in the pedagogical consequences of structural change within the education system. Successively, they focused on the dissolution of boundaries dividing subjects, schools, pupils and classrooms. Taken together, they suggest a shift in the conceptual underpinning of modern educational practice. In short, my research has traced out the declining influence of the classroom system.[1]

The Classroom System

Contrary to popular belief, classroom schools are barely 100 years old. In Scotland, for instance, they replaced forms of one-teacher schooling that had served the nation since before the reformation. Superficially, classroom schools were an administrative and architectural response to the growth of mass schooling for the lower orders. At a deeper level, however, they also reflected changing views about the functions and practices of schooling. Wherehas eighteenth century schools professed a non-vocational, religious curriculum transmitted through the medium of an oral pedagogy, the classroom system increasingly incorporated a secular, vocational curriculum transmitted through the medium of book learning.

---

[1] The term 'classroom system' is used in this account in the same sense as 'monitorial system'. In fact, classroom based forms of school organisation were once known as the 'Prussian system'.

As its name suggests, the classroom system embodied a particular class-ification of knowledge, children, teachers and schools. If eighteenth century popular education reflected an ecclesiastical or monastic model of schooling its nineteenth century counterpart resonated with the rhythms of industry and commerce.

School attendance and punctuality became more closely regulated through the adoption of clocks, bells, timetables and registers; schoolrooms were reshaped so that the newly-introduced blackboarding was visible from all parts;[2] seats, writing surfaces and books were made available to all children; and, above all, mass-production forms of pedagogic practice (viz. 'simultaneous' class teaching) gradually began to replace the more individualised catechistic and 'mutual' (monitorial) methods.[3]

For almost a century this set of ideas, categories and practices provided the dominant model for the design, organisation and conduct of British schooling.[4]

The Classroom System and Educational History

Almost inevitably, the foregoing analysis is as crude as it is perfunctory. To a considerable degree it reflects the failure (or reluctance) of professional historians to devote the same attention to the processes of schooling as they have given to the study of educational politics and administration. Silver's recent criticism of English education history could also extend to Scotland:

---

[2] Although blackboards and chalk are recorded in Comenius' Orbis Pictus (1658), they did not figure prominently in schools until after the 1820's (see Monroe, 1911, p.391). The earliest reference to blackboards in Murray's English Dictionary (Oxford, 1888) dates from 1823 and refers to Edinburgh High School.

[3] Within the framework of this account the monitorial system (c1790-1840) was an interim form of organisation - a prelude to the classroom system. It tried to provide mass schooling while retaining the one-teacher system (see 'Open plan schools past and present' in Hamilton, 1977).

[4] For the sake of brevity, this proposal presents the classroom system as relatively homogeneous and unproblematic. The purpose of the research is not to justify this designation but to test it.

> There are no published studies of possible, varieties of educational experience in monitorial schools, workhouse schools, factory schools, dame schools - indeed all schools
> (Silver, 1977, p.60; emphasis in original)[5]

Silver suggests that, in part, this 'neglect'[6] derives from the use of 'conceptual stereotypes' about schools and schooling and from the deployment of 'crude models of social structure and social change' (pp. 62 & 65). A clear example of this weakness can be found in the introduction to Bain's Education in Stirlingshire from the Reformation to the Act of 1872 (1965). The author not only treats teaching as a stable phenomenon, he also dissociates the teaching situation from wider social realities. Thus, Bain explicitly eschews any detailed consideration of teacher-pupil relationships on the grounds that, when compared with changes in 'social structure', they are 'relatively unchanging and bound to continue as long as the teacher-pupil situation itself remains' (p.12).[7]

Uncritical (and ahistorical) use of categories like factory system, capitalism, and knowledge-as-commodity are further instances of this tendency. It is one thing to suggest that economic changes in the nineteenth century had an impact on the evolving forms of schooling; it is something else to claim a general 'correspondence between school structure and job structure' (Bowles & Gintis, 1976, p.13). Until the 1870's - as Frith (1977) has demonstrated with respect to Leeds - schooling in England was far from being a homogeneous social form, and far from being in a simple correspondence relationship with the workplace.

---

[5] A possible Scottish exception to this claim is John Wood's Account of the Edinburgh Sessional School (1828). A recent English exception is Frith (1977).

[6] Silver is not claiming that there are no school studies, merely that there is a dearth of investigations into the 'varieties of school experience'.

[7] My own view differs markedly from Bain's. I believe that the teacher-pupil relationship is just as much an historical form as 'organisational structure'.

In Silver's term - which I accept - the weakness of educational history is conceptual rather than merely empirical. A solution, therefore, is not simply to be found in an antiquarian return to original sources: new organising frameworks are also required. Classroom research may be of value in this respect.

Classroom Research

In recent years classroom research has established itself as a relatively autonomous sphere of educational enquiry. Nevertheless, like educational history, it has also relied heavily upon a set of unexamined assumptions about the classroom system. Each in their own ways, the methods, theories and forms of explanation used in classroom research testify to this reliance on the classroom system.

Until recently the methodology of classroom research has been dominated by techniques (e.g. Flanders' interaction analysis; Flanders, 1970) which presume an enclosed teaching area, rows of desks and a one to one relationship between the teacher and his or her class. Such emphasis upon the 'conventional' classroom is well demonstrated in The Study of Teaching (Dunkin & Biddle, 1974). Dunkin and Biddle limit their appraisal to investigations which focus upon a 'single teacher and a group of thirty or more pupils of approximately equal age'. Furthermore, they go on to 'assume' that the school day is organised into a 'prescribed set of lessons', that school rooms are 'rectangular', and that all classrooms 'tend to have a flag, patriotic pictures, a waste basket, pencil sharpener, supply cupboards and exhibits of work pertinent to the subjects taught' (pp. 32-34). Dunkin and Biddle take the classroom for granted. Their claim that 'the process of teaching is suprisingly invariant across the United States and throughout the Western world' (p.32) is not so much an empirical generalisation as a statistical artefact. Having ruled out a major source of variance it is fallacious to infer that teaching is an invariant phenomenon. Dunkin and Biddle are just as trapped by the classroom 'black box' as the input-output researchers they explicitly set out to supplant.

To the extent that they underwrite the functional autonomy of classroom life, contemporary theories of classroom research also echo the classroom system. Particularly vulnerable in this respect are psychological studies of classroom climate and sociological studies which use symbolic interactionist perspectives. The weakness of such investigations (reviewed in Morrison and McIntyre, 1969; Hamilton and Delamont, 1974; and Sharp and Green, 1975, chapter 1) is not that they provide inadequate accounts of classroom life (some do, some do not), but that they are difficult to articulate with studies that address larger social units. Macro and micro perspectives are seldom successfully integrated. The usual outcome is a dualistic juxtaposition of 'school and society' (the title of an Open University Reader, 1971) rather than a relational synthesis of school in society.

A third limitation of contemporary classroom research is that it tends towards teacher-centred explanatory schema. The personal characteristics of teachers (e.g. personality, instructional style, linguistic competence) are given priority over other attributes of the situation. Despite their differences, Keddie's 'Classroom knowledge' (1971) and Bennett's Teaching Styles and Pupil Progress (1976) are good examples of this tendency.

Both investigators pivoted their studies around the actions of teachers. Keddie focused on the way teachers 'process pupils and knowledge in mutually confirming ways' (p.156) and Bennett examined the question 'Does teaching style make a difference?' (Ch. 2). In both cases the authors decided a priori to locate teachers at the centre of their schema. It is important to recognise, however, that such causal frameworks represent only one way of interpreting the data. Indeed, towards the end of his account Bennett began to develop an alternative theory - one that placed 'work activity' rather than teaching style at its core (p.159).

These three general attributes of contemporary classroom research can, I suggest, be traced back to a culture-bound conception of schooling that invokes strong elements of architectural, institutional and pedagogic insulation. Ideas of this kind help to build schools as well as theories. Collectively, therefore, they both reflect and reinforce the classroom system.

Classroom Research and the Classroom System

Recently, however, these assumptions have been the subject of a more sceptical attitude. They have begun to be recognised not only as an inadequate characterisation of modern educational practice but also a conservative framework for modern educational research. This critical stance is reflected in papers such as 'Open schools, open society?' (Bernstein, 1967); 'Conventional classrooms, "open" classrooms and the technology of teaching' (Westbury, 1973); 'Classroom research: a cautionary tale' (Hamilton and Delamont, 1974); 'Interaction analysis in informal classrooms: a critical comment on the Flanders' system' (Walker and Adelman, 1975); and 'A critical review of science classroom interaction studies' (Power, 1976). The most significant feature of these interventions is that they pinpoint a disjunction between conventional images of classroom life and more recent forms of pedagogic practice.

With the possible exception of Bernstein, none of the cited critics presents a portrayal of school life that comprehends the classroom system, its antecedents or its derivatives.[8] If educational history has a weak sense of the classroom, then classroom research has a weak sense of history.[9] Posed in these terms, however, the problem prefigures its own solution.[10]

---

[8] Although Bernstein has made a very important contribution to these debates, his claims are vitiated by the absence of supportive historical evidence (cf. 'One great problem in writing the history of the Mechanics' Institutes is that there is so little evidence as to how science subjects were taught in the various establishments... This scarcity of evidence on pedagogy makes it impossible for us to address ourselves to the very interesting suggestions relating knowledge to control in Basil Bernstein' (Shapin and Barnes, 1977, p.70). Shapin and Barnes' study, like that of Watt on 'the seminar' (1970) could, in the context of this proposal, be considered exemplary accounts.

[9] Three important but isolated exceptions to this stricture are Broudy (1963), Hoetker and Ahlbrand (1969), and Wragg (1974).

[10] This claim does not, of course, rule out other strategies for uncovering the domain assumptions of the classroom system. Cross-cultural studies, for instance, could serve a similar purpose.

Research Aims

Within the framework sketched out above, the proposed two-year investigation has the following practical goals:

1. to identify and analyse the artefacts and assumptions of the classroom system as they emerged in Glasgow during the nineteenth century (sixteen months);
2. to prepare an account (or accounts) of the classroom system using data gathered during the first phase of the study (eight months).

Area of Study

Glasgow has been chosen for several related reasons. First it became one of the world's leading industrial centres in the nineteenth century. Secondly, by the end of that century it had the second largest school board outside London. Thirdly, the existing bibliographic material on Glasgow (e.g. in The School Board of Glasgow 1873-1919, Roxburgh, 1971; and the Bibliography of Scottish Education Before 1872, Craigie, 1970) provides rapid access to known primary sources. Fourthly, the growing literature on the social history of Glasgow (e.g. Damer, 1976) can assist with contextual and demographic information. And finally, but most important, Glasgow was the spawning ground of educational ideas and practices (viz. those associated with the names of Owen, Wilderspin and Stow) that, later in the nineteenth century, were to exert a powerful influence far beyond that place.

Conduct of Research

The investigation will utilise a case study rationale (see, variously, Cronbach, 1975; Campbell, 1975; Hamilton, 1976).[11] Six initial questions will help to focus the study.

---

[11] I recognise that all these examples are drawn from social science sources rather than from historiography. Nevertheless I would submit that many of the problems (e.g. sampling, generalisation, explanation) are very similar.

How was popular schooling represented in Glasgow at the turn of the nineteenth century? What were its artefacts?[12] What changes subsequently took place? When did these changes occur? Why did they take place? How widespread was their impact?

Guided by these interests, the inquiry will be both intensive and extensive. The overriding goal will be to make sense of the classroom system in Glasgow by locating its evolution securely in time and space. Thus, due attention will be focused on events elsewhere. In part, this is a relatively easy task since a major primary source - the Minutes of the Committee of Council on Education - contains information about the conduct of schooling in Britain as a whole, not just Scotland. Further contextual information will be sought from books about related educational systems (e.g. Report on the State of Public Instruction in Prussia, Cousin 1833) and from foreign (i.e. cross-cultural) accounts of British Education (e.g. De L'Enseignment Secondaire en Angleterre et en Ecosse, Demogeot and Montucci, 1868). To complement these official and semi-official publications, particular effort will be made to discover sources which offer contrasting views about Glasgow Schools (e.g. newspaper articles, teachers' magazines) and/or which supply evidence of the diversity of school provision outside the Scottish burghs (e.g. the questionnaire survey of 'Education in the Highlands and Islands of Scotland' conducted by the Agelic Society of Inverness in 1820).[13]

An important concern - not yet resolved - relates to the historical time span of the study. While it is historically defensible to start at the end of the eighteenth century (i.e. with the emergence of the monitorial system) the guidelines for establishing closure are less apparent. For this reason the period of study will be progressively defined as the inquiry proceeds. As Kemmis (1976) has argued investigations of this kind should not presume the case, but 'create' it.[14]

---

[12] By 'artefacts' I mean the pedagogical resources that are available in any given epoch. These include time, space and human capital, as well as 'school appliances' such as blackboards, desks, globes, maps, stuffed animals, magic lanterns and libraries (see Laurie, 1898, p.219).

[13] Further bibliographic and contextual material will be sought in works such as Alt (1960), Alwall (1970) and McNicholas (1974). The research budget includes funds to visit Libraries outside Glasgow (e.g. British Museum, DES Library, National Library of Scotland). For reasons noted above, an important concern of the research will be to locate and analyse primary source material. The relative lack of such analyses suggest the need for full-time and sustained research in this area.

The second phase of the research will merge with the first. The empirical data will be organised into a coherent explanatory account of the emergent ideas, events and practices of the classroom system.

The preparation of written material (e.g. progress reports, literature reviews, bibliographic surveys) will be an integral part of the research. The act of writing is also an act of clarification and conceptualisation. Moreover, as a more accessible medium than thought (or speech), working papers of this kind will enable other people to contribute to the validation and objectivity of the inquiry. Clearly, however, the final (public) outcome of the study will be contingent upon the character of its data and the quality of its rationale.[15]

Educational Studies, In-service Education and the Classroom System.

Besides educational historians and classroom researchers this investigation has the potential to influence a much wider section of the educational community. In particular, a study of the classroom system can - as shown below - make a contribution to the curriculum of teacher education.

---

[14] It is likely, however, that the focus of the study will not extend beyond the nineteenth century. The first purpose-built Board school in Glasgow was opened in 1875; and certain schools built towards the end of that decade are still in use. This last fact draws attention to a possible follow-up study: the impact of the classroom system on late twentieth century schooling.

[15] Since much of the research will be directed towards the collection of systematic base-level data about nineteenth century Glasgow schooling, an important part of the immediate feedback will be in this form (cf. Withrington's studies of school attendance and Latin teaching in seventeenth and eighteenth century Scotland; Withrington, 1962 and 1965). It is also hoped that the research will be able to respond to Johnson's appeal for 'a more convincing chronology of (nineteenth century) public schooling which, perhaps, only fresh local research will supply' (Johnson, 1976, p.51).

In the next decade it is officially envisaged that the number of teachers undergoing full-time in-service education will be quadrupled. It is reasonable to assume that this expansion will focus much closer attention upon the curriculum of post-experience teacher education. If teacher training has the responsibility of bringing practitioners into closer contact with classroom life, one important role for in-service education is to allow them to stand back and reflect upon their experiences and prospects.

In thse terms, a study of the classroom system would not only augment a growing corpus of educational theory but also make a significant contribution to the selfconsciousness of educational practitioners. By helping to release teachers (and researchers) from the 'tyranny of the present' (Simon, 1975) it would enhance their professional expertise and autonomy. Whether or not the classroom system is in decline, an understanding of its origins and assumptions might make a more reasonable basis for contemporary educational debate than the continued deployment of hearsay and intuition.

Addendum (October, 1977)

Within a timescale of 12 months instead of two years, the investigation will retain its original aims but relatively more attention will be given to collecting data in and around Glasgow and less attention to writing a 'final' report. In all probability the report to the SSRC will comprise a set of 'interim papers' of the kind outlined on page nine of the proposal.

References

Alt, R. (1960) Bilderatlas zur Schul - und Erziehungs Geschichte (Band 1), Berlin: Volk and Wissen Volkseigener Verlag.

Alwall, E. (1970) The Religious Trend in Secular Scottish Schoolbooks 1850-1861 and 1873-1882, Lund: C.W.K. Gleerup (Lund Studies in Education No. 38).

Bain, A. (1965) Education in Stirlingshire from the Reformation to the Act of 1872, London: University of London Press.

Bennett, N. (1976) Teaching Styles and Pupil Progress, London: Open Books.

Bernstein, B. (1967) 'Open schools, open society?' New Society, (September 14).

Broudy, H.S. (1963) 'Historical exemplars of teaching method' in Gage, N.L. (Ed.) Handbook of Research on Teaching, Chicago: Rand McNally, 1-43.

Bowles, S. & Gintis, H. (1976) Schooling in Capitalist America, London: Routledge and Kegan Paul.

Campbell, D.T. (1975) 'Degrees of freedom and the case study', Comparative Political Studies, 8, 178-193.

Craigie, J. (1970) A Bibliography of Scottish Education Before 1872, London: University of London Press.

Cronbach, L.J. (1975) 'Beyond the two disciplines of scientific psychology', American Psychologist, 30, 116-127.

Dale, R., Esland, G. and MacDonald, M. (Eds.) (1976) Schooling and Capitalism: a Sociological Reader, London: Routledge and Kegan Paul.

Damer, S. (1976) 'Property relations and class relations in Victorian Glasgow', Discussion Paper No. 16, Department of Social and Economic Research, University of Glasgow.

Dunkin, M. and Biddle, B. (1974) The Study of Teaching, London: Holt Rinehart & Winston.

Flanders, N.A. (1970) Analysing Teaching Behaviour, Reading, Mass: Addison-Wesley.

Frith, S. (1977) Education, Industrialisation and Social Change: the Development of Elementary Schooling in 19th Century Leeds, a Case Study in Historical Sociology, Ph.D. thesis, University of California, Berkeley.

Hamilton, D. (1976) 'Some contrasting assumptions about case study research and survey analysis' to be published in Simons, H. (Ed.) Towards a Science of the Singular (in preparation).

Hamilton, D. (1977) In Search of Structure: Essays from an Open Plan School, London: Hodder & Stoughton.

Hamilton, D. and Delamont, S. (1974) 'Classroom research: a cautionary tale' Research in Education, 11, 1-15.

Hoetker, J. and Ahlbrand, W.P. (1969) 'The persistance of the recitation', American Educational Research Journal, 6, 145-167.

Johnson, R. (1976) 'Notes on the schooling of the English working class 1780-1850' in Dale, R. et. al, 44-54.

Keddie, N. (1971) 'Classroom Knowledge' in Young, M.F.D. (Ed.) Knowledge and Control, London: Collier-Macmillan, 133-160.

Kemmis, S. (1976) 'The imagination of the case and the invention of the study' University of East Anglia, Centre for Applied Research in Education (mimeo).

Laurie, S.S. (1898) On Primary Instruction in Relation to Education, Edinburgh: James Thin.

McNicholas, J. (1974) The Design of English Elementary and Primary Schools: a select annotated bibliography, Windsor: NFER.

Monroe, P. (1911) A Cyclopedia of Education (Vol.1), New York: Macmillan.

Morrison, A. and McIntyre, D. (1969) Teachers and Teaching, Harmondsworth: Penguin.

Power, C. (1976) 'A critical review of science classroom interaction studies' Department of Education, University of Queensland, St. Lucia (mimeo).

Roxburgh, J.M. (1971) The School Board of Glasgow 1873-1919, London: University of London Press.

Shapin, S. and Barnes S.B. (1977) 'Science, nature and control: interpreting Mechanics' Institutes', Social Studies in Science, 7, 31-74.

Sharp, R. and Green, A. (1975) Education and Social Control, London: Routledge and Kegan Paul.

Silver, H. (1977) 'Aspects of neglect: the strange case of Victorian popular education' Oxford Review of Education, 3, 57-69.

Simon, B. (1975) 'Education and social change', paper read at the AERA annual convention, Washington D.C.

Walker, R. and Adelman, C. (1975) 'Interaction analysis in informal classrooms: a critical comment on the Flanders system, British Journal of Educational Psychology, 45, 73-76.

Watt, I. (1970) 'The seminar' in Musgrave, P.W. (Ed.) Sociology, History and Education, London: Methuen, 223-231 (orginally published in 1964).

Westbury, I. (1973) 'Conventional classrooms, "open classrooms" and the technology of teaching', Journal of Curriculum Studies, 5, 99-121.

Withrington, D.J. (1962) 'The SPCK and highland schools in the mid-eighteenth century, Scottish Historial Review, 41, 89-99.

Withrington, D.J. (1965) 'Lists of schoolmasters teaching Latin 1690' Scottish History Society Miscellany, 10.

Wragg, E.C. (1974) Teaching Teaching, Newton Abbot: David & Charles.

Working Paper 3rd March, 1978.

THE CHANGING DISCIPLINES OF SCHOOLING

(Some preliminary considerations for the period 1790-1840)

David Hamilton
Department of Education
University of Glasgow
Glasgow G12 8QQ.

In October 1977 the author began a twelve-month investigation entitled 'Classroom research and the evolution of the classroom system' (SSRC Grant HR5127). Briefly, the project focuses upon Glasgow and aims to shed light on current forms of schooling by examining the assumptions and artefacts which transformed the nineteenth century schoolroom into the twentieth century classroom. This working paper - written towards the half-way stage of the study - represents a stocktaking exercise. It should be construed as a kind of dialogue. The first part offers a concise but necessarily speculative overview; the second section - written as a series of notes - articulates a qualifying counterpoint. Earlier work related to the theme of this research can be found in Hamilton (1977a, 1977b).

Towards the end of the 1830's two English Poor Law officials, James Kay and Carleton Tufnell, visited Scotland to study its educational system. On their return, one of them - later to serve as the senior civil servant in education - remarked to his colleague 'how little we knew of this subject before our visit to Glasgow' (James Kay, quoted in Pollard, 1956, p.219).

Despite difficult travelling conditions, Kay and Tufnell followed a well marked trail. The two main publicists for the monitorial system - Andrew Bell and Joseph Lancaster - had made similar journeys in 1797 and 1812, respectively. Bell's visit is notable for the fact that he tried, unsuccessfully, to sell the monitorial idea to David Dale at New Lanark. Lancaster's journey is significant because it contained a public dinner in Glasgow at which Robert Owen made his first major pronouncements on education.

If England looked to Scotland as a potential model (or market) for its emergent national education system, Scotland tended to look elsewhere for its ideas. Robert Owen (a Scot by marriage if not by birth) visited Europe in 1818 and, later, sent his two sons to be educated in Switzerland. Similarly, the first person to bring the Prussian education system to the notice of the British (reading) public was William Hamilton, an Edinburgh professor who had visited German Educational Institutions after the Napoleonic wars, in 1817 and 1820.[1]

The attraction of continental notions extended well into the 1830's. The first rector of the Glasgow Normal Seminary - the earliest teacher training institution of its kind in Britain - was required to visit schools in England, France and Germany before taking up his post in 1837 - the same year that Kay and Tufnell journeyed north on their own 'Grand Tour'.[2]

As this evidence suggests, the circulation of educational ideas and practices during the first forty years of the 19th century was more than a parochial concern. It extended across a variety of national, religious, economic and political boundaries. In a very real sense, the 'global school' prefigured the 'global village'.[3]

This paper considers such developments by documenting their impact upon schooling in Glasgow and its surroundings. From an historical perspective it recounts a story of raw materials and commodities, merchants and trade routes, markets and consumers. From an educational standpoint, it examines the dynamic relationship between educational ideas and practices. Above all, it focuses upon discrepancies between the disciplines of thought and action. It is not so much about 'forms of schooling' as about 'changing forms of schooling'.

Ideas and Practices in Schooling

When compared with the laboratory study of learning or the historical study of educational politics, data about the enactment of schooling are remarkably hard to find.[4] At the same time, educationalists have devoted more attention to the ideas of prominent innovators (e.g. Owen, Pestalozzi) that they have to the implementation of their schema. Whatever the reasons for this imbalance, the net result is that even less is known about the mutual interpenetration of ideas and practices.

This gross instability is not easily overcome. Yet, just as modern historians have argued that a dearth of written sources is no excuse for ignoring the non-literate sections of society, so difficulties of data collection or access cease to be acceptable theoretical reasons for neglecting the day to day transactions of schooling -past, present or future. The appropriate methodologies may, perhaps, seem closer to archaeology or anthropology than to traditional forms of historical or educational inquiry but, whatever their provenance, the ultimate purpose of these strategies is to further the development of more comprehensive frames of educational and historical analysis.

As a provisional statement, schools can be defined as social institutions set up to transmit (or reproduce) socially acceptable ideas and dispositions. In any given instance, however, the educational values of a school's sponsors may differ from those of its teachers, managers, students' etc. Thus, the practices of schooling derive from a variety of educational intentions. Each party to the activity has their own conception of education, but schooling is what actually takes place.

From this perspective, schooling represent the simultaneous expression of differing ideas about education. Further, since schooling can also be regarded as an interaction between subjective intentions and objective social conditions, it may, in its own turn, foster new understandings which modify those originally held by the participants.

Overall, then, the following analysis rejects a closed systems-model of schooling. Educational practices are not a one-to-one reproduction of educational beliefs, nor are they a simple amalgam or analogue of externally-derived social forces.[5]

SOME ASPECTS OF SCOTTISH SCHOOLING IN THE LATE 18th CENTURY

In the eighteenth century, Scotland was relatively well served with educational institutions. From the 16th century successive church and state authorities had endorsed the idea of universal schooling since they believed it was the most effective mechanism for maintaining their temporal and spiritual interests.

In rural areas, children of all ages and both sexes were supposed to attend the parish school for around 5 hrs. per day (including Saturdays). By 20th century standards attendance was highly irregular. Scattered sources indicate tht it varied within each day as well as from day to day, season to season and year to year.

Given the fact that schools operated through a system of paternalistic laissez-faire, published enrolment figures are probably a poor guide to school attendance. Nevertheless, they may help to indicate the size at which a school became economically viable. Data from the Old Statistical Account (prepared in the 1790's) suggests that schools with less than 30 fee-paying pupils fell below the threshold of subsistence living. The most popular size seems to have been between 30 and 60 children, though one or two parishes are recorded as having schools with more than one hundred scholars.[6]

By a series of laws codified in the 17th century, the local land owners (who were not necessarily locally-resident) were to provide a 'commodious' school house in each parish and a salary for one master. The provision for both these resources varied considerably. Some parishes failed to provide the 'legal accommodations' (a one or two-roomed school-house) whereas others offered a specially constructed building extending to two storeys and four apartments.[7]

Besides his salary the parochial schoolmaster received fees (or 'wages') from the scholars. These were calculated, usually on a sliding scale, according to the number of subjects (or'classes') taken by each scholar. Poverty was only a formal barrier to school attendance for borderline families since destitute children could receive free tuition (and books) as part of the parochial poor relief.[8] A schoolmaster could also generate revenue in other ways. Accepted methods included the taking-in of boarders, the performance of official duties (e.g. church session clerk), and the teaching of subjects outside the specified curriculum. Other forms of income - particularly those which required the master to travel away from the parish - were not so easily tolerated. The appointments of school masters varied considerably. Some remained in post for many years while others merely took such positions on route for other occupations (e.g. minister).[9] In the 18th century, a threshold qualification for parish schoolmasters was that they should be competent to teach latin. There is evidence, however, to suggest that this stipulation was used more as a basis for selecting masters than as an actual teaching requirement. The fact that a master 'offered' latin was no guarantee that any of his scholars would take it.[10]

Economics, School Size and Pedagogy

During the 18th century the disposable value of a parochial school master's salary declined to the extent that there must have been economic pressure to increase school enrolment. A rise in the population over the same period, certainly helped in this respect but the net result spilled over into other spheres. (Between 1755 and 1820 the population of Scotland increased by roughly two-thirds, while the population of Glasgow increased almost five-fold, from 31,700 to 147,000. See Smout, 1969, pp. 241, 243).

A growth in enrolment meant a relative decline in the attention that an individual master could give to his classes. This not only led to a greater emphasis being placed upon repetitious forms of instruction (e.g. rote learning) it also prompted some parents to set up their own ('subscription') schools or to send their children to private ('adventure') schools. The population increase solved the schoolmasters' economic problems but, in the process, created pedagogical instabilities within the schools.

A growth in enrolment also led to an increased employment of assistant teachers. Like the withdrawal of scholars from the parochial school, this innovation also had the effect of creating a visible social segregation in the parochial school system since assistants were probably used more with paupers (also on the increase) than with the fee-paying classes.[11]

The basic educational activities of the 18th century parish school were designed to reinforce the religious or moral precepts of the church. The schoolmaster was employed as the minister's (and heritors') pedagogical assistant. In the process, he used instructional forms of an ecclesiastical derivation - lecturing, singing, catechising.

Whereas lecturing and singing were methods of group instruction, catechisms were used for testing as well as teaching. That is, questions were directed to individual children who were expected to reply immediately. In a 'class' situation the individualised mode was sustained since the children were questioned 'in turn'.

Given the average enrolment in parish schools, individual tuition was probably something of a luxury. Children who were unable to read or unwilling to listen to others being catechised, had very little else that they could do. In this sense, then, the irregular attendance of non-literate children was functionally related to the pedagogy of the parish school.

Having memorised a set of oral questions and answers, children usually retraced the same ground through the medium of print. Initially, children learned to recognise the letters and syllables inscribed on the covers of standard school books (e.g. the 'ABC Shorter Catechism'). Gradually, they learned to read aloud from a small number of prescribed texts. Children who were able to read could be fitted more easily into the individualised pedagogy of the parish school; that is, if they were not being catechised they were supposed to be learning their allotted 'tasks' or 'lessons'.[12]

In the parish and other small schools the term 'class' (as in 'reading class') simply described a group of scholars who had paid the requisite fee. It denotes very little, if anything, about the curriculum and methods of the school. Since reading was tested individually, members of the reading class could be spread over a wide range of different books.

When a child could read in the manner outlined above, he or she had achieved the level of competence - 'personal access to the divine relevation' - as specified by the church.[13]

To advance beyond 'reading English' at the parish school was to enter a different, essentially secular, world. Writing and arithmetic were usually taken together - a curriculum combination derived from their commercial use in the drawing up of bills, receipts and other documents. As such, reading and writing were not basic but vocational skills. They gave children potential access, either as employees or customers, to the competitive world of commerce. Indeed, it is probably more accurate to describe writing and arithmetic as a single subject - 'casting accounts' - which comprised both a 'mercantile hand' and the 'mercantile rules' of computation.[14]

The fact that writing was a vocational rather than a basic subject also helps to explain the scarcity of references to Slates in this 18th century Scottish parochial school. Slates had been known in Britain since the time of Chaucer (14th century) but were not directly relevant to the creation of the kind of permanent (i.e. ink) documents required in commerce.[15] If children wanted to learn to 'write' they also had to master the manufacture and use of quills. Slates and slate pencils,of course, had very little to offer in this respect and, as a result, did not come into prominence until the early 19th century - when writing was reclassified as a basic rather than a craft skill.[16]

Among the 'higher branches' of learning, latin was the most popular in parochial schools since it was a pre-requisite for attendance at University. The curriculum of the 'Grammar' schools in the Royal Burghs was almost entirely restricted to latin, whereas in the parish schools latin was a relatively minor, though prestigeous, part of the master's teaching load. Although the designations 'parish' and 'burgh' imply a geographical separation, the latter are better understood as being in an end-on relationship to the parish schools.[17] They offered a form of further or higher education which children could take from the age of around 9 years - i.e. as soon as they could read (and write).[18]

In practice the burgh schools were also better endowed with resources than the parish schools. In populous areas this allowed for the introduction of extra teachers, the division of scholars into separate classes, and the formulation of a curriculum based on a hierarchy of texts. The official pedagogy of the burgh schools - memorisation together with the exegesis of texts - was very similar to that of the parish school though attendance might have been rather better and the class size (or pupil-teacher ratio) rather smaller.[19]

Overall, the curriculum, methods, resources and organisation of the 18th century Lowland Scottish public School System embodied a veriety of concerns. The bulk of the male, and virtually all of the female population were taught reading - a closed system of moral instruction bounded by official doctrine and enforced by means of a corporal discipline (fear). The second group, those who entered the wider world of writing and arithmetic - had their education circumscribed more by economic than spiritual forces. They were activated by an individually-oriented form of discipline (emulation) and enabled, by the emancipatory nature of their learning, to move beyond the immediate confines of their indigenous parish economies. To the first group schooling offered salvation, to the second group it offered progress.[20] A final group - largely the sons of the traditional nobility - increasingly received their education outside the Scottish school or university systems - largely at the feet of their parents or at the hands of private (or English university) tutors. Although socially influential, the education of this last group is not particularly a concern of this account since, in a very real pedagogical sense, they were apprenticed rather than schooled.[21]

SCHOOLING IN AN AGE OF TRANSITION

The state of affairs outlined above was gradually and unevenly disrupted in the course of the 18th century. Cause and effect are difficult to disentangle but it is certainly the case that events like the opening of foreign markets to Scottish as well as English traders made possible by the Union of parliaments in 1707; the publication of Adam Smith's *Wealth of Nations* in 1776; and the opening of David Dale's New Lanark Cotton Mill in the early 1780's, were to have important repercussions on schooling. The expansion of Scotland's mercantile economy - notably through the American tobacco trade - accelerated the development of curricula with a commercial bias.[22] Adam Smith's book included a proposal that publically supported schools should be set up to compensate for the degradation of the learning that accompanied a division of labour. And David Dale's employment of very young children in his cotton works meant that universal (day) schooling could no longer be claimed as a social fact in Scotland.

These events - symbolic of much wider changes - introduced new items onto the agenda of 18th century schooling. For about 50 years - that is, until more standardised practices were ushered in with state intervention in the 1830's and 40's - they continued to be the subject of debate and a certain degree of piece-meal, localised action.

As Scottish society changed, so did its educational institutions. Some of the earliest changes occurred in the universities with introduction of new subjects and the growth of teaching in english rather than latin. Further important indices were the opening of Perth Academy in 1760 and the enlargement of the Burgh Schools of Glasgow and Edinburgh in 1788 and 1779. These last two buildings - which replaced earlier versions built in 1601 and 1578 - incorporated separate rooms for the masters and their classes. Although such development could, retrospectively, be taken as the earliest beginnings of the classroom as an organizational unit there is very little evidence to indicate that the teaching methods of these schools differed from those used elsewhere.[23] Perhaps the most important consequence of the new designs was that they formalised a classification system based on divisions between and within accepted subjects which, in turn, merged with a classification based upon the skills of different teachers. Previously, classification by subject was well established but teachers specialisation within subject could only emerge as enrolment increased.[24]

As noted earlier, Scotland's population also increased rapidly during this period - a demographic development which led to the creation of a range of schools alongside the parochial system. Historically, perhaps, the most important feature of these non-parochial schools was that they catered for two contrasting groups of society - the middle-class and the poor - who gradually differentiated themselves from the dominant values and discipline of the parish school. In the main, the curricula and methods of most of these additional institutions echoed or over-lapped those of the parish and burch schools. Nevertheless, a small number - particularly the factory schools, sabbath schools, and private academies - played a major role in realising the social and educational values that were applied to, or expressed by the middle classes and the poor.

Private Academies

Seminaries run by individuals or small groups along business lines increased in large towns towards the end of the 18th century. In essence, they offered a 'modern' curriculum to compliment the lengthy classical studies available in the grammar schools and colleges. Although Perth Town Council had set up its own two-year school for arts and science in 1760, the people of Glasgow relied more on the city's existing colleges and private academies. The academies bridged the curricula offered by the grammar schools and the colleges. That is, they offered extra tuition in existing subjects, tuition in subjects not taught elsewhere, and classes for those unable to attend grammar school or college (viz. 'women' and 'those engaged in business').[25]

The owners of the Academies taught 'public classes' in their own homes or in rented or borrowed rooms. Collectively, they seemed to have operated in a mutually-independent collegial manner - with only minor squabbles over academic encroachment and poaching. Even where academies had several apartments (as in Perth), the independence of the teachers was reflected by the fact that each room was known as a 'school'.[26]

An advertisement in the Glasgow Herald for October 19th 1810 encapsulates some of the important features of academy teaching (and also contains an early reference to class room). It reports the commencement of 'lectures on the theory and practice of medicine' given by Dr. Watt in 'Mr. Allan Bain's Class Room in College Street'. These few words convey the stock-in trade of the private teacher: a concern for practical knowledge; a seminary close to the university; a syllabus that overlapped with courses elsewhere; and a shared use of teaching space.

Although the Academies are best known for their 'new subjects' it is also the case that, to gain clients, they advertised the 'newest and most fashionable' educational methods (advertisement, Glasgow Herald, March 4th 1911).

Pedagogically, the private academies in Glasgow had two notable features. First, a majority of them only offered one subject; and second, the relative wealth of their clients meant that teachers could operate with smaller classes or even give 'private' (i.e. individual) tuition.[27] These were both significant innovations. It is likely, therefore, that teachers in the private academies had scope not only to lecture their students but also engage them in public debate and essay writing - two forms of schooling that also came to prominence at that time in certain classes at Glasgow University.[28]

Factory Schools

The factory schools referred to in the Old Statistical Account of the 1790's are either colliery schools (6) or those attached to cotton works (4). The latter are much better known - largely due to the publicity attached to the schools at New Lanark run by David Dale and his son-in-law Robert Owen.[29]

Scotland's first large-scale cotton spinning mill was located at New Lanark, less than a day's journey from Glasgow. It took shape in 1786 as a partnership between David Dale, a Glasgow yarn merchant who provided the capital and Richard Arkwright, the inventor of the water frame, who provided the know-how. Three of the mill schools referred to in the Old Statistical Account - Blantyre, New Lanark and Calton - were connected with David Dale; the fourth, was set up by William Gillespie at Woodside Mill, near Glasgow.

By 1790 (if not earlier) an important part of Dale's work force were pauper children 'boarded out' from orphan asylums and poor houses in Edinburgh. The Old Statistical Account reports that New Lanark had three 'professed teachers' who taught the younger children gratis during the day; and an unrecorded number of assistants who taught the factory children, also gratis, in the evening. At certain times, Dale also employed dancing, music and writing masters. His scheme of employment and schooling at New Lanark was, presumably, modelled on the 'Town's Hospital', (or poor-house) of Glasgow (founded 1733) which similarly instructed the pauper children of the city in reading, writing and church music.[30] His use of juvenile labour followed the English pattern. The Lancashire and Yorkshire mills were also worked 'largely by young paupers from London' (Dunlop, 19[illegible]2, p.258).

Dale's educational and philanthropic motivation derived, like that of fellow yarn merchant William Gillespie, from his own background and religious beliefs. The cotton merchants came from relatively humble origins, unlike the tobacco lords of the earlier period, and generally held more fundamentalist beliefs (see Smout, 1969, p.360 -63). They had achieved rather than acquired their wealth and saw manufacturing success as the result of industry rather than speculation.

Both Dale and Gillespie broke away from the national (or established) Church of Scotland to set up (in Dale's case) and join (in Gillespie's case) small break-away congregations. The secessional churches of the late 19th century were strongly evangelical - a fact which marked them out from the more 'moderate' persuasion of the (then) establishment. Their doctrine, for instance, gave priority to virtue over knowledge and, as a result, their teachings and other missionary activities were directed primarily towards saving the urban poor and converting them to habits of industry and sobriety. The educational and religious philosophy of David Dale was also significant for other, more social and political reasons: its implementation would not only create a compliant (and contented) work force, but also alleviate the problem of rising poor law costs in urban areas.

Educationally, then, the early mill owners bridged 250 years of history. In effect, they created a problem of industrialisation with a solution offered by John Knox and others in *The First Book of Discipline* (1560).[31]

One of David Dale's partners in the Blantyre Spinning Works was another yarn importer James Monteith who proved to be an innovator in three different spheres - industrial, religious, and educational. In the late 1760's Monteith had broken away from an existing secessional church to form his own congregation in Anderston - then a village to the West of the city.[32] In 1782 he built a cotton mill at Pollockshaws, just outside Glasgow which by 1810, was not only the first in Scotland to be lighted by gas (see McCallum, 1913 - 18, p.349) but also the first to have a mill school which used a monitorial (Lancastrian) form of discipline (Wardlaw, 1810, p.31).[33]

Although the ideas of Bell and Lancaster were known in Scotland at this time, there is little evidence of their adoption. 1810, however, appears to have been a watershed.[34] In that year the *Scots Magazine* published a letter from Lancaster outlining the economy of his system and, in the same year, Ralph Wardlaw, a congregationalist minister, and David Laurie a merchant turned property speculator, both published pamphlets urging the people of Glasgow to adopt Lancaster's ideas. These two epistles - with economic and philanthropic overtones - may have been connected with the establishment of a Lancastrian society in Glasgow during the same year, but neither author refers to it specifically.[35]

The Glasgow and West of Scotland Lancastrian school society - an auxiliary of the Royal Lancastrian Institution - eventually opened schools in Anderston, Calton and the Gorbals 'for the purpose of educating and instructing children of the lower classes at a cheap rate (3d. per week) or gratis'. The schools cost £5,434 to build and were intended for a total of 1,800 children. Evidence contained in the *Report of the Select Committee on the State of Children Employed in Manufactories of the United Kingdom* (1816) suggests that cotton mill owners played a part in establishing these large schools and, to this end, closed their own factory schools.[36] By 1816, however, the schools seemed to have been in financial difficulty since the managers resolved that they should be given up if they could not achieve self-supporting status. Later data, together with that of the *Select Committee* Report suggests that the closure of the Anderston school did, in fact, take place.[37] By 1816 Cleland's *Annals of Glasgow* reports that the only Lancastrian school within the boundaries of Glasgow was 'the British New System of Education' which seems to have occupied the premises of the Anderston Lancastrian school. Cleland describes the 'new' system as 'very little different from the Lancastrian mode', but the quoted fees for reading and writing (3/-d. per quarter) presumably excluded many of the children for whom the Lancastrian system was originally intended.

As a form of schooling for the labouring classes, the monitorial system had little success in the Glasgow area because of the counter attraction of work in the cotton mills. Much more successful, however, were the part-time schools - particularly those held on Sundays.

Sabbath and Evening Schools

In his pamphlet of 1810, Wardlaw reported that 'some sabbath evening schools had been founded about 10 years previously', and Cleland's 1816 *Annals* locates their origin in the 1790's. As in England Sunday Schools were part of an evangelical religious movement that had come to prominence alongside the industrial revolution. At the turn of the century, evangelism in Scotland was, as noted, associated with a new wave of secessional churches not with the establishment. Indeed, in 1799 the Church of Scotland Assembly took 'severe measures' against the evangelical revival which included the passage of an Act against 'vagrant teachers and sunday schools' (Burleigh, 1960, p.312).[38] Despite these and other difficulties, the secessional churches carried on with their task but, as Wardlaw relates, they soon discovered that many of their scholars were unable to read. This perceived deficiency was subsequently remedied (around 1804) by the formation of four evening reading schools, two for boys and two for girls which were open on week-days from 7 - 10 p.m.

In 1808 an Association of United Sabbath Day schools of Glasgow and Vicinity was founded, which, from the evidence of its subscription list, was supported by various religious groupings (and Robert Owen).[39] The Association's primary aim was to achieve the 'everlasting salvation' of children but its 1814 report also added that this 'leading design' would also keep its charges from 'playing in the streets and fields on the Lord's Day; and committing depredations on people's property'.

The breadth of the Association's religious support also extended to the sphere of curriculum and methods. It's 1814 report claims that it was not so 'warped' as to be attached to 'any particular system of instruction'. Nevertheless, the Lancastrian model was clearly influential since not only did the society use the Lancastrian schools in Calton and Gorbals, it also taught with the extensive aid of 'premiums' and 'monitors'.[40]

SCHOOLING, EVANGELISM AND THE RISE OF SCIENTIFIC PHILANTHROPY

By about 1815, then, schooling for the poor or labouring classes in Glasgow was a delicately poised institution. Despite the efforts of private individuals and societies to augment the parochial system, educational (and poor law) provision was seen to be totally inadequate. The industrial revolution and the Napoleonic wars had created a section of workers who, in times of slump, doubled as a new and sometimes politically-organised class of able-bodied (rather than 'impotent') paupers.

The leadership of the established church began to take notice of these developments. In 1815, Thomas Chalmers - subsequently leader of the evangelical section of the Church of Scotland was inducted into the Tron Kirk, Glasgow; in 1816 David Stow opened his first Sunday School; and in 1817 the Glasgow Sabbath Evening Schools Youth (Missionary) Union was founded. In certain areas (e.g. Sabbath Schooling) the Church of Scotland worked alongside the secessional churches, in other initiatives, (e.g. the Youths Union) the two groups worked together. Although these developments were closely related to religious considerations, they also served the interests of the rising middle classes whose members ran the churches, staffed the sabbath schools and administered the missionary societies.

The entry of the national church (or perhaps more accurately, influential national churchmen) into debates about education in urban areas also led to the advancement of solutions that were consonant with the existing system of parish schools. In theory, three options were available within the existing law: (1) an increase in the number of parishes in populous areas; (2) an enlargement of existing schools; and (3) the establishment of additional schools. The last of these solutions had been sanctioned by a Parliamentary Act of 1803 but was unsatisfactory because the legal provisions for salary and accommodation rarely attracted acceptable teachers. An increase in school size through, for instance, adoption of the monitorial system, was also unattractive. It conflicted with a strongly-held belief in a localised school system where the schoolmaster (and minister) knew every scholar and their families. The first solution - an increase in the number of parishes received the most support. It had been operated in respect of overspill churches (termed Chapels-of-Ease) since the end of the 18th century.

Thomas Chalmers' experiences in the centre of Glasgow led him to become a strong proponent of a parochial (or local) solution to the religious, economic and educational shortcomings of the 'city peasantry'.[41] By 1819, Glasgow had 6 'secessional' schools attached to, and supported by, specific Church of Scotland congregations (*Parliamentary Select Committee on the Education of the Poor: a digest of Parochial Returns*,1819).

Secessional schools were only a partial solution to the problem of working class schooling since they ran into the same recruitment problems as the Lancastrian schools. By contrast, schools which operated outside normal working hours were much more viable. For instance, the Select Committee Report of 1819 indicates that the Barony parish of Glasgow - 'where the greatest part of the labouring classes reside' - had 4 'parochial' schools, one evening school and 43 sabbath schools.

(The return for the Gorbals parish of Glasgow - where 'the means of education are so ample' - comprised 35 day schools, one evening and 13 sabbath schools). Part-time schools were cheap to run and cheap to attend: they employed 'gratuitous' teachers, used rooms unoccupied by day schools, and charged lower fees. Further, because the teachers were usually unpaid, there was no pressure upon them to accept large classes. The average enrolment in the Barony 'parish' schools was 121, whereas each sabbath school took 'from 25 - 80 scholars'. (The comparable figures for Gorbals are 67 for day schools and an average sabbath school enrolment of 45). Although the parish and sabbath schools had equivalent curricula (i.e. rudimentary instruction in the 3 Rs) the smaller classes and the (generally) better educated teachers of the latter must have had an influence (or potential influence) on the pedagogy.[42]

These differences can be traced through the annual reports of the Sabbath School Union of Scotland which, in the early years following its foundation in 1816, seems to have resisted the monitorial system.[43] The fact that the size of the sabbath schools was smaller than that of the parish schools allowed the former to develop a more individualised (or personalised) mode of instruction. The 'Hints' that are reproduced in the Third Annual Report of the Union (1819) suggest that to retain the attention of children and help them to 'hear with understanding' teachers 'should throw in from time to time, an elucidation or put occasionally an explanatory question' (Third Annual Report, 1819, p.63).

Schooling and Rationalism

Such references to teaching through 'explanation' and learning through 'understanding' are very common in Scottish educational texts of the early 19th century. As an educational principle, the idea was anything but novel yet it had never been voiced in an age of mass schooling. The importance of 'understanding' as a pedagogical construct can be seen from the fact that both the major Scottish Educational 'systems' of the period - Wood's 'explanatory' system (Wood, 1828) and Gall's 'lesson' system (Gall, n.d.) pivoted around such an idea.[44]

Explanatory systems can be traced back to earlier French and Scottish philosophical and psychological ideas. In the 18th century such *viva voce* or *extempore* teaching was held to be theologically suspect on the grounds that it extended beyond the accepted canons (questions and answers) of the national church. Explanatory lessons, therefore, were the pedagogical equivalent of *extempore* sermons or prayers.[45]

By the early part of the 19th century, however, the impact of rationalism in the church had led to an acceptance of the theological view that virtue could be created through reason as well as through piety. Training of the mind rather than the memory also had broader philosophical implications.[46] It was well attuned to the utilitarian belief that virtuous behaviour resulted if individuals could understand the relationship between their own and the general interest.[47] These two standpoints were historically important because their points of contact - virtue through rationalism - served to unite educational interests which stressed rationalism (e.g. the moderates in the national church) and those (e.g. the secessionists) which gave priority to virtue. Viewed from these two perspectives, the intellectual method was applicable to all classes of society. To the commercial sections, it offered mental emancipation while to the lowest ranks it provided a means whereby they could appreciate the true basis of human happiness - the triumph of intellect over sensuality.[48]

The New Institution for the Formation of Character

These diverse influences upon educational practice - industrialisation, monitorial schooling and the intellectual method - came together in the scientific philanthropy of Robert Owen at New Lanark. In September 1814,a few months after he had formed a business partnership with several wealthy philanthropists associated with the West London Lancastrian Association (see Simon, 1960, pp.148-50) Owen sacked the schoolmaster who had served David Dale for twenty-three years. Initially, Owen's plan was to reorganise Dale's school on monitorial lines. The New Institution's principle school room reflected this view. It comprised parallel rows of seats and writing surfaces (cf. pews) with a large area (for standing tuition) around the edge of the room and a pulpit at one end. The room was slightly longer and wider than the basic plan recommended by Lancaster (1811), but these deviations may have been deliberate - allowing for raised galleries around three sides of the schoolroom and an aisle down the middle. Adjacent to the principal school room was another large room, devoid of fixed seating, which had a raised gallery at one end.[49] The origin of Owen's galleries is not clear but it is likely that they were of ecclesiastical derivation. Galleries had been added to Medieval Scottish churches not only as a means of increasing their capacity but also as a basis for separating social groups from each other.[50]

By the time the New Institution was opened on January 1st 1816, Owen had become disenchanted with Lancastrianism such that in his evidence to the *Select Committee on the Education of the Lower Orders in the Metropolis* (1816), he explicitly rejected high pupil-teacher ratios - the central economic feature of the monitorial system. Instead, he recommended that schools should have a 'much greater number of masters' and agreed, when asked by the Committee, that such changes were 'absolutely necessary':

> 'It is impossible, in my opinion, for one master to do justice to children, when they attempt to educate a greater number without proper assistance' (p.241).

The initial pedagogy of Owen's New Institution shows no particular evidence of being other than that offered in 'superior' schools elsewhere (see *Select Committee Report, Passim)*. By 1821, however, there were signs of change. The cash book of the new institution not only contains an entry concerning the introduction of baths, it also records a purchase of three 'black painted' boards. Further, in the following year there are references to the fitting up of a 'small room in (the) new building for Miss Howell's class' and an item recording the expenditure of £277 on the purchase and the transportation of several large wall maps from Miss C.V. Whitwell's school (in London).

Although blackboards occur in Comenius' *Orbis Pictus* (1656) they did not become common in schools until the 19th century. Hitherto, lessons were built around set texts which were reproduced in books or (as in the Lancastrian system) displayed on charts. The pedagogical significance of blackboards (and the reason for the delay in their widespread dissemination) is that they allowed *extempore* teaching which, as noted above was not previously accepted. Furthermore, the presence of 'chalk and talk' at Owen's school also suggests the concurrent emergence of class teaching - a pedagogical method whereby the attention of a group of children is uniformly focused on a particular idea whose image is (or might be) recorded on a blackboard. The existence of stable classes also foreshadowed the adoption of separate classrooms. In the first instance these seem to have been constructed (as at New Lanark) as small rooms leading off a large schoolroom. In large schools - particularly those that adopted a formal (annual) promotion system - classroom became another name for schoolroom.[51] This last form of organisation (or terminology) was not adopted at New Lanark but Robert Dale Owen's account of the school implies that it had been a subject of discussion. He reports:

> 'The facility of teaching the older classes particularly, would have been greatly increased, had some part of the building been divided into smaller apartments, appropriating one to each class of from twenty to thirty children, provided such an arrangement had not encroached either on the lecture room or principle school room' (1824, P.155).

Four paragraphs later this idea is repeated with the added comment that such a design would 'greatly increase(d) the facility with which their attention could be gained'.

The juxtaposition of concern for the 'facility of teaching' and the 'facility of gaining attention' reinforces the view that Owen was working towards a form of interactive teaching with relatively homogeneous classes of children. Such modes of organisation had an affinity (if not a direct connection) with the practices publicised by Pestalozzi in Switzerland. Owen's knowledge of Pestalozzi is likely to have predated his visit to Yverdun in 1818, since he was probably acquainted with Elizabeth Hamilton's pamphlet on Pestalozzian methods dedicated to Edinburgh Education Society and published in 1815. Within a few years, however, Pestalozzi's influence at New Lanark is clearly visible. In his autobiography (1857), Owen has very little to say about his visit to Yverdun and his comments on Pestalozzi - 'a good and benevolent man acting... to the extent of his knowledge' (p.177) are, at best, patronising rather than flattering.[52] Owen may have received a better account of Pestalozzi from Miss Whitwell who had written a pamphlet in 1819 that was dedicated to the Swiss educationalist.[53] Owen not only purchased Miss Whitwell's paintings, he also employed her as a teacher at New Lanark in the early 1820's.[54]

In many respects, Owen's New Institution was an exceptional school; not only because of the relatively advanced nature of his ideas, but also, and perhaps more important, because of its high running costs. The New Institution offered its students middle-class ideas and resources which Owen had learned about from his contacts in Glasgow, Edinburgh and elsewhere.[55] In terms of its curriculum, teaching methods, pupil-teacher ratios, apparatus and space, the New Institution came close to, if not surpassed, levels found in private schools.[56] In 1816, scholars between the ages of 7 and 10 paid 9d. a quarter (3d. monthly) at a time when private seminaries in Glasgow charged around 12/6d. for vocal music, 21 shillings for mathematics and 42 shillings for dancing (Cleland, 1816, p.999).[57] In 1817 the annual expenditure of the New Institution was £506, while its income was only £11. Although the income gradually increased over the years it still lagged behind expenditure which peaked at £1,369 in 1822.

In 1820 and 1821 the New Lanark's works made a loss (having paid the interest due to the share-holders).[58] This financial setback may have precipitated a request by Owen's partners in January 1824 that he should reinstate the Lancastrian system and dismiss Miss Whitwell (who received much higher wages than the other teachers). Whatever the reasons for their request, Owen relinquished direct control of the New Lanark school and within 12 months had emigrated to the U.S.A.[59]

Owen's Pedagogical Testament

Although Owen's withdrawal from New Lanark meant the temporary curtailment of his radical educational ideas, the practices he had marked out were carried forward - albeit in a modified form. At the end of 1818 (i.e. after Owen's return from the Continent) one of his schoolmasters - James Buchanan - was invited by James Mill, Henry Brougham and others to run a similar school at Spitalfields in London for 2 to 11 year olds (see Rusk, 1933, p.135ff.). In turn, Burchanan transmitted his ideas to Samuel Wilderspin whom he had recommended to Brougham as a suitable person for running a similar school,located on the west side of London. Wilderspin took up his new appointment in 1820 with 38 pupils from 2 to 7 years of age - an enrolment which later increased to more than 100 scholars. Owen's influence upon Wilderspin, came not only through Buchanan but also through direct contact; Owen visited Wilderspin's school on 'three or four' occasions in the early 1820's (Wilderspin, 1823, p.108).

Buchanan seems to have been influenced by Pestalozzi's ideas though it is not yet clear as to the source (or sources) of his information. Another early infant teacher (David G. Goyder) claimed in his autobiography (1857) that Buchanan had urged him - 'towards the close of 1820' - to become 'acquainted with the system of Pestalozzi'. Goyder also reported that he learned of Wilderspin's work at this time but added that there was 'nothing' to be seen at Wilderspin's school that he had 'not seen at the school of Mr. Buchanan' (Goyder, quoted in Murphy, 1966, p.132).[60]

Wilderspin's Model (i.e. ideal) school combined the two main rooms of the New Lanark Institution. Wilderspin gives no indication as to the origin of his plans but the net result looks as if it was based on Robert Owen's dancing room with (i) the raised gallery changed to a sloping gallery, and (ii) the Lancastrian lesson poles (but not the pews) brought in from Owen's writing room. Further, like Owen, Wilderspin includes a small class room (25 feet by 14 feet) as an adjunct to the main school room. To make proper use of the class room, Wilderspin suggested that schools on his system should be staffed with two teachers (a master and a mistress) - one to be 'occupied in the large room, the other in the class room' (1823, p.26).[61] In theory, the class room was to be used for more elaborate and intensive teaching. Separate class tuition was to be given by an adult rather than a monitor and through the use of apparatus (tables, number cubes, raised letters) rather than repetition.[62] Wilderspin also reports that multiplication tables and related rhymes were to be chanted by the children in his schools; though it is not yet clear whether this was a particularly novel practice.

In his later writings (1832,1840) Wilderspin gives examples of lessons on geometry and geography that echo the practices of Pestalozzi and Owen.[63] Detailed analysis, however, suggest that although these lessons took the same form, they served quite different functions - as if Wilderspin had taken Owen and Pestalozzi's materials but had left behind most of their ideas.

Glasgow Infant School Society.

Following the death of his wife in 1824, Wilderspin became a missionary for the London Infant School Society, formed that year by Brougham and his associates (see McCann 1966, p.193 - 4). He travelled the country giving demonstrations of his teaching and helping to set up 'infant' schools.

In this capacity, Wilderspin received a letter from David Stow - a successful Glasgow businessman - inviting him to Scotland. The journey, of about 400 miles, took eight days on horse back. Stow already had first-hand knowledge of Wilderspin's work, having visited the Spitalfield school in 1820 (Glasgow Education Society Third Report, 1836, p.6).[64] Wilderspin's visit to Glasgow was in the Spring of 1828 (see Rusk, 1928, pp.36 -37). By this time Stow had founded the Glasgow Infant School Society. According to his own account, Wilderspin spent a month in Glasgow setting up the Drygate Infant School in one of the poorest parts of the city (1832, p.104-9); and Stow's writings confirm that the school was organised on Wilderspin's plan (Stow, quoted in

Fraser, 1868, p.83).[65] The ground floor of the school was occupied by the master and mistress and the gallery was erected on the upper floor. The building was leased for ten years and catered for about 130 children from the ages of 2 to 6 years of age.

Wilderspin visited Glasgow on at least 3 occasions before 1830 (Wilderspin, 1832, *passim*). His relationship with Stow was presumably reasonably close since both operated from the same evangelical premise: that the primary task of (infant) schooling was moral regeneration through recourse to bible education.[66] In the words of George Lewis, later to become joint secretary of the Glasgow Education Society the 'grand aim' of all education was not to make children 'learned' but to make them *'good'* (Lewis, 1834, p.88, emphasis in original).

Infant schools were like Sunday schools in that they provided a formal education for children (of variable ages) who, during the hours of attendance, were not in employment.[67] When the Glasgow Infant Society was formed in 1827, it was well supported with subscriptions but by the end of that decade the Drymarket school was maintained largely through the single-handed efforts of David Stow. In 1830, its conditions began to improve when the General Assemply of the Church of Scotland began to take an interest in urban schooling - a fact reflected in the extension of its education committee to include, among others, David Stow. (The size of the committee was increased from 12 members in 1834, to 24 members in 1836).[68]

The General Assembly's campaign to extend schooling in urban areas went hand in hand with its programme of church extension. Other important developments of the 1820's and 30's were the political agitation leading up to the Reform Bill of 1832, a rapid rise in Glasgow's population(largely through immigration), and the advent of state aid for schooling. If the first two of these factors created problems for the General Assembly, the last one offered a solution.

A new element in the debates of the 1830's came with the recognition that part-time (i.e. evening and sabbath) schooling was an inadequate solution to the immediate problems confronting church and state interests.[69] There was not only a need for more teachers in working class areas but also a need for teachers who would adhere to the evangelical ideals of the General Assembly. The establishment of a church-controlled teacher training institution, separate from the rationalist tendancies of the universities, would meet both these needs.

From his earliest efforts at day-time schooling Stow had noted the importance of teacher training - a fact, which among other things, led him to add 'Model" to the name of the Drygate school in 1831, and open a more commodious Model Infant School in the Saltmarket in 1832.[70] Later (i.e. soon after 1833), Stow refurbished the existing St. John's parochial school as a model junior school for children over the age of six (Fraser, 1868, p.125).[71]

Upon its foundation in 1834 the Glasgow Education Society adopted Stow's Model schools and began to prosecute the cause of large-scale teacher training. Mimicking the Prussian System it aimed 'in particular' to establish a 'Normal Seminary...(for) a regular professional education' (Hints towards the formation of a Normal Seminary..., 1835).[72] (Normal Schools, unlike Model Schools, were primarily devoted to training teachers rather than teaching children). In November 1836 the foundation stone of the seminary was placed in position; the formal opening ceremony followed almost twelve months later and, in 1839 the Seminary received its first Treasury grant.

The Pedagogy of David Stow

While Stow's efforts to establish a Normal Seminary are reasonably well documented, this paper is more concerned with his pedagogic methods. Historically, it seems that Owen took the 'interrogatory' method used at Glasgow University and introduced it into a (sloped?) school room setting; that Wilderspin reaffirmed the idea while emphasising the value of small group interrogatory 'lessons' held in separate class rooms; and that Stow pulled the small groups out of the class room, put them back into the gallery where they read from books or replied to the teacher's questions in a 'simultaneous' fashion. Although the pedagogy changed, the 'gallery' size remained fairly constant: Owen quotes a figure of 150 pupils; a drawing in Wilderspin (1840, plate 3) contains 184 faces; and Stow's 1836 Gallery had room for about 140 children (see Seaborne, 1970, plate 125; and Stow 1854, p.216).[73]

By these architectural and educational means, Stow not only established stable groupings of children (i.e. a graded school) he adduced a psychological principle - the 'sympathy of numbers' - to justify his policy of large group teaching, and refined a set of disciplinary and pedagogical techniques - notably the simultaneous method - for putting it into practice.[74]

It was the publication of these views in *The Training System* (first edition, 1835) and their operationalisation in the Glasgow Normal Seminary that brought James Kay and Carleton Tufnell to Scotland in 1837. In the ensuing years Stow's work was to provide the ideological and pedagogical basis for the abandonment of monitorial teaching, the dissemination of mass schooling and, later, the widespread adoption of the classroom system.[76]

Just as Robert Owen tried to realise the optimistic, even utopian, values of the early industrial revolution, so David Stow attempted to harmonize the discordant and unstable elements of a later, and quite different, period. Further, the personal wealth of these innovators enabled them to create (or command) the resources necessary for the translation of their educational ideas into practice.[77] Both, for instance, were aware of the mediating role played by resources; and, as a result, both brought new disciplines to the organisation of schooling.

SOME CONCLUDING REMARKS

This progress report has aspired to be coherent but open-ended, concise but defensible. It makes no claims to be educational exhaustive or even unassailably accurate.[78] Much has been consciously omitted for the sake of brevity, yet some errors, for certain, have been unwittingly allowed to remain.

Bearing in mind these shortcomings, this analysis has tried to address three related concerns. First, from an historical perspective, it sketches out an account of the salient features of schooling in Glasgow and surroundings as they emerged and evolved between 1780 and 1840.[79] It argues, for instance, that although Owen's rationalist deism (or atheism) was far from Stow's evangelical support for the protestant church, the former contributed a great deal to the latter. Second, from an educational perspective, the account treats the Glasgow phenomena as part of a much wider movement that took analogous (but not identical) forms in other countries such as England, Germany, Holland, France and the U.S.A. In this respect, it suggests that Pestalozzi's practices, as mediated in different contexts, were particularly noteworthy. Finally, from a theoretical standpoint, the analysis makes a conceptual distinction between 'ideas' (cf. theory) and 'practices' (cf. theory-in-use).[80] In doing so, it suggests that ideas are transformed into practices through the appropriation of specific resources (e.g. time, space, silence, equipment, human capital).

Overall, then, the paper could be considered as an attempt to highlight the fact that, in the articulation of educational practice, an appreciation of educational resources is as important as an understanding of educational ideas.

* * * * * * * * *

NOTES

1. William Hamilton wrote an article ('Cousin on German Schools') for the *Edinburgh Review* in 1833 which communicated the substance of Victor Cousin's report to the French Government on the Prussian school system (1833). Hamilton worked from a German translation (see Hamilton 1866, p.590). An English version, by Sarah Austin, was published in 1834. Hamilton already knew of Cousin's philosophical writings and had written about them

(anonymously) in the *Edinburgh Review* of 1829. Sarah Austin was responsible for informing Cousin of Hamilton's identity. The link between Edinburgh and Glasgow may have been David Welsh who moved to a chair in Church History at Edinburgh in 1831 after four years as minister of St. David's Glasgow (and staunch supporter of Glasgow Infant Society).

2. The original plan of the Glasgow Education Society was to send two students to a Prussian Normal Seminary for a period of three years. This scheme was later abandoned on the (official) grounds that 'though the schoolmasters of Pressia may, as a body ... be superior to those of Scotland, yet schoolmasters are to be found in Scotland as accomplished in their profession as any masters trained in... Prussia' (Glasgow Education Society Report, 1835, p.11).

3. While 'Global School' is perhaps an over-glib statement, it is still true that the ideas of Owen, Lancaster, Bell and Stow spread to Africa, Asia, North and South America (see Charconnet, 1975, p.3; Cordasco, 1973, p.11. I am grateful to Raymond McAleese, University of Aberdeen for the first of these references). A teacher from New Lanark - James Buchanan - set out for the fifth continent (viz. to start infant schools in New Zealand) but upon landing at Cape Town decided to remain there (see Rusk, 1933, p. 144). Widespread dissemination of educational ideas and practices was not restricted to the early nineteenth century. It had also been associated with the migration of early christian monks and the medieval movements of mendicant scholars. The historical significance of the nineteenth century phonomenon is probably due to the intensity of the trade rather than to its extent.

Robert Dale Owen (son of Robert Owen) reports in his autobiography that between 1815 and 1824 the visitor's book at New Lanark recorded 'nearly twenty thousand' names. It is not clear, however, whether the visitor's book relates simply to the school or to the entire establishment at New Lanark. Nevertheless, Owen presents this datum within his discussion of the school and also includes the statement that 'I have seen as many as seventy persons in the building at one time'. (Owen, 1874, p.114). David Dale's earlier initiatives also attracted visitors to New Lanark. The visitor's book for 1795 to 1799 records an average of 691 visitors per annum in the (complete) years 1796-8. Besides Scotland and England visitors came from the West Indies, Sierra Leone, U.S.A., Germany, Spain, Italy, Portugal, Brazil, Nova Scotia, Sweden, Switzerland, Belgium, France and Russia. (The visitors book is held by Glasgow University Archives Department together with those for 1821-24 and 1824-32). Among the visitors were several people whose work is noted elsewhere in this account: Henry Brougham, James Monteith, Ralph Wardlaw, David Laurie, Robert Owen, Professor (Dugald?) Stewart, James Cleland and Andrew Bell.

4. Nowhere is the lack of analyses of pedagogic practices more evident than in the 5 'county' histories of Scottish education published between 1931 and 1965 by the University of London Press. While valuable, if uneven, sources in many respects not one discusses the pedagogical significance (or form) of the teaching methods used in Scottish Schools. For a general discussion of the writing of Scottish History see Withrington, 1970(a). Histories of teaching method are remarkably hard to find. To date, the best that I have uncovered are *A History of instructional technology* (Saettler, 1968), and *2500 years of langugage teaching* (Kelly, 1969). The changing significance of ideas and practices is well illustrated by comparing the first English account of Pestalozzi's work (viz. Biber's *Henry Pestalozzi,* 1831) with one of the most recent (Heaffords, *Pestalozzi: His Thought and its Relevance Today,* 1967). Fifty per cent of the first volume is taken up with an exposition of Pestalozzi's practices compared with virtually nothing in Heaffords text. *Pestalozzi's Educational Writings* (Green, 1912) suffers from a similar defect. The editor - Professor of Education in the University of Sheffield - has omitted from 'How Gertrude teaches her children', the descriptions of Pestaloggi's teachings on the grounds that they are 'rather of historic than of present-day importance' (p.86).

5. The arguments in the section on the relationship between ideas and practices are not as clear as I would have liked. They are retained in their present inchoate form rather as a place marker.

At a theoretical level they are central to the research. By making a distinction between ideas and practices it is possible, I believe, to avoid two debilitating weaknesses - functionalism and reductionism - evident in certain recent analyses of schooling in society.

If a functional correspondence is claimed to exist between ideas and practices (or between 'school structure and job structure', Bowles & Gintis, 1976, p.13), there is no scope for social change: each merely reinforces and reproduces the other. If, on the other hand, both are treated as being in a separate but over-lapping relationship, it becomes possible to analyse educational change as the result of efforts by various interest groups to bring their ideas and practices into a more harmonious relationship. (Bowles & Gintis reinforce this error, perhaps unwittingly, when they write about 'the spread of the now established "factory system"' (p.3) rather than the more historically accurate 'spread of the evolving "factory system". Hobsbawm, for instance, describes the Lancashire cotton industry as the 'first' factory system', 1962, p.20; see also Pollard 1965, *passim*). Similarly, if schooling is treated as society-writ-small, there is no theoretical basis for explaining changes within schooling except in terms of changes in the wider social system. Not only does such a theory ignore the significance of ideas generated within the context (or by the nature) of education, it also denies the claim that schooling (as an activity) has any distinctive attributes.

6. 35 parishes (out of 95) furnish data on school enrolment but the data are not reducible to a comma base as the figures occur, variously, as averages, ranges or minima. The smallest quoted figure is 25, the largest 105. Of those parishes that report averages and ranges (N=16), the average attendance is 50.6 children. The reported non-parochial schools appear to have a smaller average enrolment (range 10-80) This may be because they were better endowed and/or charged higher fees. There is an additional reason for treating enrolment figures carefully. They may, in certain cases, refer to the number of children who passed through a school over a given period, rather than to the numbers in simultaneous attendance. The Campsie, Stirlingshire Return reports that two hundred children are 'educated annually' in the parish; Cumbernauld, Dumbarton

reports eighty scholars 'annually educated' and the writing school in Stirling catered for 'one hundred (scholars) annually'.

School attendance - like hours of schooling - before the days of legal compulsion is a difficult topic to discuss. It is easy to fall into the trap of using twentieth century standards. Is it correct, for instance, even to use the term non-attendance? If a child did not go to school for any particular session was he or she breaking a socially accepted norm? Likewise, if a child was expected to attend, did schoolmaster's use anything other than their memory to keep accounts of their scholars. The fact that, in 1816, seventeen scholars in the top class at Glasgow Grammar school received prizes for, 'not being absent for any meeting' during five years (Cleland 1816, Vol.I, p. 172) not only suggests that records were kept in some schools but also that they had been kept for a number of years. Evidence of detailed record keeping (and of diurnal variations in attendance) can be deduced from the register of New Lanark Mill School submitted by Robert Owen to the *Select Committee on the state of Children employed in the Manufactories of the United Kingdom* (1816, p.91-2). Whether Owen's register or that of the Grammar school represents a formalisation of eighteenth century practice or an indication of new forms of accounting is not clear.

The evidence also gives hints of an important Lowland/ Upland difference in attendance. In Lowland parishes attendance was probably higher in winter when there was little work to be done on the land whereas in Upland (or more accurately dispersed) parishes, attendance was higher in summer because of travel problems during the winter season. (See, for instance the Old Statistical Account returns for Houston, Renfrew (fewer in summer) and Kilmacolm, Renfrew (fewer in winter).

7. Four roomed school houses arereported in the Old Statistical Account at Balfron and Gargunnock, Stirlingshire; the latter comprising 'two floors'. Sub-standard accommodations is only referred to with respect to the parishes of Dalserf and Blantyre in Renfrewshire though such conditions may also have obtained in some of the 31 parishes (34%) in the counties of

Dumbarton, Renfrew, Stirling and Lanark which submitted nil returns with regard to the provision of schools. With regard to salary, the Old Statistical Account indicates that the Masters at Cardross (Dumbarton), New Monkland (Lanark) were without a salary. In the former case the master received a donation from (some of?) the heritors. The collection of a salary became more difficult as the number of land-owners in each parish increased.

8. The entry for Bothkennar (Stirlingshire) in the Old Statistical Account contains the following entry: 'a few poor scholars have their school wages and books' paid for from the revenue of weekly church collections. Whether the supply of books was generally met in this way would depend on a ruling of the local presbytery. The fact that the Bothkennar returns contain such an entry may suggest, however, that books were not normally charged to church collections. (Unless otherwise indicated all references to the Old Statistical Account relate to an analysis of the counties of Dumbarton, Renfrew, Lanark and Stirling; that is, those including Glasgow and its surroundings).

9. The pattern of teacher employment, in Scotland is worthy of further study. Historians have repeatedly drawn attention to the fact that schoolmasters were appointed for life. Whether this was more of a problem than teacher turnover is not clear. The only comments on these matters in the Old Statistical Account relate to Campsie, Stirlingshire which had 13 schoolmasters between 1759 and 1795; Glasford, Lanarkshire which 'in six years' had five changes of schoolmasters, Shotts, Lanarkshire which had a 'rapid' succession of teachers, and Symington, Lanarkshire whose schoolmaster had taught 'for up to fifty years'. A valuable study of teacher success could be built around the lists of schoolmaster and their periods of office in 83 Aberdeenshire parishes contained in Simpson's University of Aberdeen (?Ph.D) thesis (see Simpson 1947, preface). The emergence of teacher associations in the eighteenth century is, perhaps, a further indication of the development of teaching as a 'career' (see Belford, 1946, chapter I).

10. The Old Statistical Account return for Cathcart, Renfrew includes the comment that classical education is 'seldom' required. Similarly Latin was only 'sometimes' taught in Houston, Renfrew; and 'not taught for several years' at Roseneath, Dumbarton.

11. In the counties surrounding Glasgow only four parishes (out of 64 (69%) that provide relevant data) report schools with more than one teacher - and all of these are to be found in populous areas. One return - from the parish of Lanark - is particularly noteworthy since the respondant also saw fit to report that the schoolmaster and his assistant taught in the 'same room', implying that schools with separate apartments were not unknown at that time. Schools with a large stable enrolment could employ teachers to teach specific subjects - a technical rather than a social division of labour. Unless they employed their sons as assistants, schoolmasters in parish schools were reluctant to employ assistants since, if they were too successful (or too well-paid) the assistants might set themselves up in competition. On the other hand, if the master underpaid the assistant, the latter was likely to leave at any time. I have not yet found any direct Scottish evidence of assistant teachers being delegated to pauper children but there is English evidence in Goldstrom (1972).

12. The historical relationship between lecturing, singing and catechising merits further attention. In the *History of Early Scottish Education* (1893), Edgar suggests that, 'as the musical part of the church service declined in importance under the rule of presbytery, the catechism gradually took the place of music as the characteristic feature of a primary education'(p.106). He fails, however, to offer any data for this assertion. The empirical data for my analysis of the individualised basis of the'old methods' is drawn, in the main, from retrospective testimony generated in the early nineteenth century by the onset of 'new methods' (see, for instance, 'Parochial Schools', 1828). There is no doubt that individual questioning played an important part in the pedagogy of the schools but it can only be seen alongside other methods. The relationship between

classing, individualised instruction and the 'improvement of education is well illustrated in the following (abridged) quotation. 'The number of boys in each class, perhaps, should not be above ten to twelve, if it be much greater it will prevent the improvement. It cannot be expected that when a boy has answered the question proposed, he will stand, with fixed attention, till it returns to him in course. Besides, if a boy is disposed to be idle, he will flatter himself that his ignorance may sometimes escape unnoticed in the crowd, and he will take less pain to prepare a lesson of which he is to give an account of so small a part' (Chapman, 1773, p.60). Note that it is the scholar who 'prepares' the lesson, not the master. (For a brief history of lesson planning see Mossman, 1924).

13. The quotation, 'personal access to the divine revelation', comes from an educational report of the Gaelic Society of Inverness (1826, p.32). Throughout the history of post-reformation Scotland, reading the 'word' has figured prominently in educational and theological debates - particularly during the various evangelical periods. The only extensive account of the parochial curriculum in the Old Statistical Account came from Campsie, Stirlingshire: 'The common style of education is carried on in the following manner. They learn the sounds of the letters and then the union of the syllables, in the small spelling book, then they receive the large spelling book, then they get the New Testament, and the Bible, in which they commonly read some time, and then the Collection: then get a question in the common catechism to repeat every morning; there is a public repetition on Saturday, with a psalm on Monday'. (The *School Collection* was, as far as I can gather, a set of secular-moral readings).

14. References to the 'mercantile hand' and the 'mercantile rules' of arithmetic can be found in Buchanan (1824) and 'An Account... of Belfast Academical Institution' (1824). Writing and arithmetic were sometimes lumped together (as in 'English, writing and arithmetic, Latin; Old Statistical Account, Glasford, Lanarkshire). In other instances 'casting accounts' was used as a synonym for arithmetic (Campsie, Stirlingshire). These

differences may be evidence that arithmetic was growing into a fully-fledge basic subject at that time.

15. Slates are reported in Chancer's Astrolabe II (c.1391). According to Watson's *Encyclopedia and Dictionary of Education* (1922), slates, were 'not employed for school purposes till about 1804, when Joseph Lancaster adopted them as a device for saving the cost of paper and pens'(see entry under slates).

16. Genovese's American characterisation of the vocational significance of reading and writing as 'reading, writing and prospects' (1975, p.561 ff.) neatly parallels the Scottish situation.

17. The full extent of the eighteenth century public school approved curriculum can be gauged from the subjects that are reported in the Old Statistical Account. 35 parishes supplied full data (out of 91): English reading (33), writing (30), arithmetic (30), Latin (21), book-keeping(7), Greek (5), French(4), church music (2), English grammar (1), mathematics (1). Note: these are subjects on offer and may not have been taken up. Additional subjects may have been taught in private schools or as extra-curricular classes by the parochial schoolmaster. The comparable of figures for the New Statistical Account (reporting the state parishes in the 1830's and early 40's) indicate an increase in the number of subjects made available; and a rapid growth of geography, English grammar, and (various forms of) mathematics. For a detailed analysis of parish schooling in the counties of Aberdeen, Banff and Moray in the early nineteenth century, see Kent (1977).

18. Evidence that parochial and Burgh schools also had an overlapping relationship is indicated by Simpson's statement that 'in the eighteenth century nearly all the Aberdeenshire parish schools were grammar schools' ,1947, p.36).

19. Evidence to support the summary of schooling in large, well endowed schools can be found in two 'Improving' documents published in Scotland: *A plan of reform in the mode of instruction*

(MacNab, 1786) and *A treatise on education* (Chapman, 1773). A full discussion of these documents is beyond the scope of this account. Briefly, however, they advocate a pedagogical articulation of the ideas of people like Rousseau (progress by class as an appropriate form of natural development); Adam Smith (emulation as a form of moral sentiment, time-tabling as a dvision of labour), and the materialist and common sense philosophers (teaching through the use of 'natural' objects). An additional noteworthy feature of these documents is that both are suffused with the rhetoric of efficiency and utility without any direct reference to industrial practice. (Chapman's pamphlet was published nine years before David Dale went into partnership with Richard Arkwright). Finally, the social context that prompted MacNab's account can be adduced from the fact that it is dedicated to Edmund Burke. Both authors, it seems, proposed a solution to the problem of the 'promiscuous' (i.e. disorderly) school, itself located in a disorderly society: 'to reconcile the lowest classes of society to the fatiques of constant labour... pains should be taken to convince them, when young, that sub-ordination is necessary in society' (Chapman, p.73-4); 'A well conducted education is the most effectual way to secure virtue in Society' (MacNab, p.7).

20. An elucidation of the association, between forms of discipline and different curricula and methods is a continuing concern of this investigation. The analysis presented above is foreshortened. It does, however, bear a considerable weight of empirical evidence. Although the term emulation appears in eighteenth century educational writings, prizes do not seem to have been widely used until later. Indeed Simpson claims that 'so far as can be ascertained prizes were not awarded (in Aberdeenshire parish schools) until the nineteenth century' (1947, p.48). This does not seem to have been the case elsewhere (see Law 1965, p. 54 & 56and the Old Statistical Account return for Alloa, Clackmannanshire) but it does support the original contention. Certainly, Scottish parochial schools could be compared with Joseph Lancaster's Borough Road Monitorial School which, in 1801-4 spent around 10% of its annual income on 'premiums' (Lancaster, 1806, p.13-19). (Miller, 1973, p.20 gives a figure 'over 20%' for the year 1803-4. This statement

is incorrect since it includes the regular weekly wages of the monitors). An important source of information about prizes is the account books of societies like the SSPCK which, according to Law was giving prizes at its Edinburgh Schools in 1760 (1965, p.56). At a later date Robert Dale Owen saw fit to report that *'all rewards and punishments'* were 'sedulously excluded' from the New Institution at New Lanark (Owen, 1824, p.145, emphasis in original). Premiums to 'keep up' emulation had also been recommended in *The Wealth of Nations*, (Smith, 1776, pp.523,786).

21. Mathew's analysis of the origins and occupations of Glasgow students, 1740-1839, shows that the proportion of traceable inarticulated students for 'Nobility and Landed' backgrounds declined from 31.9% in 1740-49 to 13.5% in 1790-99. Even though the numbers of students almost doubled in the same period this still represented an absolute as well as a proportional decline. The largest group (49.9%) in 1790-99 were drawn from 'Industry and Commerce'.

22. One interesting educational sidelight on the American tobacco trade is that it provided Andrew Bell with the basis of his private fortune. After leaving St. Andrews University he worked as a private tutor in the American colonies between 1774-1881. He was sometimes paid in tobacco which, following the Wars of Independence, rapidly increased in value.

23. The word classroom is used rather anachronistically by historians. In 1816 Cleland referred to class rooms in the Glasgow Grammar School but it is not yet clear that such a term was used when the school was opened. Other problems arise when foreign words (e.g. schola) are translated into English as 'classroom'. Aries, for instance says (in translation) that 'H.I. Marrou wrote a bulky volume on the history of education in ancient times without mentioning classes once' when, in fact, the English translation of Marrou contains the word classroom in its preface (see Aries 1962, p.176 and Marrou, 1956, p.XVI). In Glasgow, the term was probably first used in the University and then spread to the private academies, and the Grammar School. The critical period seems to have been between 1727.(The published records *(Munimenta)*

of Glasgow University up to that date contains no mention of classroom) and 1811 (when a new building with 'class rooms' was constructed, see Thomson, 1877, p.10). Secondary sources are very weak on this distinction with the exception of David Murray's *Memories of the Old College of Glasgow* (1927) which recognises the historicity of terms like 'school' and 'classroom' (p.22, footnote). The introduction of the word classroom not only came with new educational methods, it also accompanied a rapid expansion of college student numbers (which doubled between 1800 and 1806).

24. As might be imagined, the various historically-located forms of class-ification are a major concern of this investigation. Originally the word class, like the word form, referred to a small group of scholars within a larger group. Gradually it began to refer to the larger group. The early architectural usage of the word 'classroom' reflects these two meanings (see below).

25. This account of private academies relies heavily on Withrington (1970(b)). The reference to 'women' and 'those engaged in business' comes from an advert in the Glasgow Herald for classes in writing, arithmetic, book-keeping, practical mathematics and geography (8th October, 1810). The 'business' classes were specifically held in the evening.

26. Given that the population of Glasgow and student numbers were both increasing rapidly around the turn of the century it is likely that the demand for academies outstripped the suppy. Certainly, problems arose in specific areas (e.g. conflicts between the University and the separate Faculty of Physicians and Surgeons, see Saunders, 1950, p.338 ff.) but the overall fact that the private teachers were tolerated by the town council suggests that they did not offer a major threat to the established institutions. Private teaching in Glasgow, as recorded in the Post Office Directories (1783 onwards) included the following subjects for the year 1799: Dancing, instrumental music, English, drawing, Latin, French, vocal music, mathematics and writing (see Borrin Flint, 1978). Further evidence of the existence of

egalitarian relationships among teachers is the fact that in 1782 Glasgow Grammar School abandoned a system of 'Rector and three masters (assistants?)' and, replaced it with four teachers of 'equal rank, authority and salaries' who took the 'rudiments' class in turn, carrying it forward for four years. In 1815 the Burgh Council added a fifth year to the curriculum, restored the rectorship and reintroduced a hierarchical form of organisation (see Cleland, 1816, Vol.2, p.158). The Mitchell Library (Glasgow) has a set of papers (not yet consulted) relating to the Grammar School covering the period 1790-1840.

27. Cleland's *Annals of Glasgow* (1816) contains a list of 144 private seminaries with information as to their location, owners and curricula. English (i.e. reading) was the most popular subject (67) followed by 'writing and arithmetic' (31) and vocal music (26). 119 seminaries offered only a single subject.

28. The evidence for this assertain about teaching methods in the Glasgow College comes from a secondary source, George Davie's *The Democratic Intellect* (1961). The text of his book, however, indicates that Davie's argument is based more on inference than data: 'Jardine, Millar and the (other) Glasgow men were *no doubt* notable for being the conscious exponents of this educational method' (p. 25, emphasis added). Jardine had been present on the occasion of the banquet to welcome Joseph Lancaster to Joseph Lancaster to Glasgow in 1812 and was one of the two Glasgow professors with whom Owen was on 'the most friendly terms' (Owen, 1857, p.107). (The other was James Mylne). Jardine, among others, also instituted a system of emulation and prize giving in Glasgow University towards the end of the eighteenth century.

29. I have not yet been able to find much secondary information on the early Scottish Colliery Schools. There is nothing in the educational histories of Stirlingshire and Ayrshire (two of the major coal mining areas) although Boyd suggests that 'the importance of the Colliery Schools in Ayrshire is not generally appreciated' (1961, p.116 fn). Some English data can be found in Pallister (1968-9).

30. Information about the early Cotton Mill School at New Lanark is as yet, rather confusing (see Silver's comments, 1965, p.110). The minister at Lanark who filed the return for the Old Statistical Account was not particularly well-disposed to Dale (who was not a member of the established church). An account of Dale's school written in 1816 by someone who claims to have been a teacher at New Lanark between 1791-1814 is contained in the Strathclyde Regional Archives (T-MJ 100). The account makes no mention of additional teachers, though it does refer to assistants. Under Dale's dominant influence (i.e. before 1800) the day school had 150 pupils, the evening school 600-700. The children were publically examined every six months and premiums awarded to 'those scholars who had made the most progress'. Evidence of Dale's occasional employment of dancing and singing masters is contained in an account of New Lanark prepared by John Marshall, a Leeds flax-spinner, following a visit in 1800 (see Butt, 1971, p.188).

31. The social and economic links between the early mill-owners were not only forged through religion, they also took shape through marriage and the co-partnery system of mill ownership. A co-partnery differed from a joint stock company in that (a) it had very few shareholders; (b) the permission of the remaining partners had to be sought before any partner could sell his shares; and (c) it was the custom for one of the partners to become the resident manager of the mill. For a contemporary discussion of the relative merits of co-partnerships and joint stock companies see *The Wealth of Nations* (1776, pp.740-741).

32. Stewart (1881 p.106) gives the date of Monteith's secession as 1768 whereas Drummond & Bulloch (1973, p.142) recount the same events as a happening in 1769. The Anderston Relief Kirk eventually opened in 1780 with, perhaps significantly, an English non-conformist preacher (Stewart, 1881, p.107).

33. The Pollockshaws monitorial mill school was only open in the evenings. It predates the foundation of the Glasgow and Edinburgh Lancastrian Societies (1810, 1812). Evidence of any predecessors may be held in the (London) records of the National and British Societies (not yet examined).

34. The years around 1810 also saw the foundation of the Royal Lancastrian Institution (1809) the National Society (to promote Bell's ideas, 1811) and the British and Foreign School Society (a re-established version of the Lancastrian Institution, 1813).

35. Wardlaw's pamphlet had been given as a paper at the Literary and Commerical Society of Glasgow (8th February, 1810; see Atkinson, 1831). In the absence of a detailed comparison, Laurie's ideas appear to be a plagiarisation of Adam Smith's *Wealth of Nations* (Book 4, chapter 5, articles 1-3). The connection between industry and piety is well-characterised in Wardlaw's claim that regular intellectual exercise, as practiced on the Lancastrian System, helped to make 'virtue a habit' (1810). Wardlaw was deputy chairman (under Robert Owen) at Lancaster's Glasgow dinner (1812).

36. The Cotton Mill owners may have been panicked into supporting the schools since, in the years 1810-11, they were collectively troubled by an upsurge of violence among their operatives. *The (Friendly) Society of Operative Cotton Spinners* achieved legal recognition in July 1810 and was used, illegally so the owners alleged, to support members who were 'out of work'. The owners also claimed that workers who had been dismissed for 'drunkenness, irregularity of attendance and other misdemeanours'were attacking those who had been appointed in their place. One solution proposed by a committee of the owners was that employers should set up their own Friendly Societies to 'offset' the effect of the operatives combination. On a more immediate level, they also agreed to operate a blacklist. (Strathclyde Regional Archives T-MJ 99). This example is included as another placemarker. There were industrial and political disturbances throughout the period under review though their existence is not always obvious from contemporary educational writings. Some of the clearest evidence can be found in the reports of the Glasgow City Mission (1827 onwards). In the second report, for instance, a missionary records a meeting with 'an infidel who had been deeply read in Voltaire, Rousseau etc.' (p.22). Among other things the Mission's Reports indicate that many operatives received their education outside the approved establishments of schooling. (In reading circles? Friendly Societies?).

37. The mill owners support for the Lancastrian Society is indicated in the evidence of H. Houldsworth to the Select Committee 'The Lancastrian School system (in Glasgow) has become very much the fashion with us, and I have patronised it very much; and I put a stop to our own schools that I had established for the work people, in order to encourage it, as it was only three or four hundred yards from the (Anderston) works. I find that it has been a serious injury to the younger branches of my workers, and I gave orders some months ago to the person who occupies the school-room, to quit this term, which is the 28th of this month (April) in order that I may again establish schools, both night schools and Sunday schools' (p.247). Note early use of the word 'term' rather than 'quarter'. Was this a reflection of the fact that Houldsworth was an Englishman?

38. The early history of Sabbath Schools in Scotland deserves closer attention, particularly for the light it might throw on the relationship between industry, schooling and the changing attitudes of the major groupings - 'moderates' and 'evangelicals' - in the national church. David Stow's father was involved in such a controversy over Sunday schooling in Paisley (see Fraser, 1868, p. 21-23). For a detailed history of the Sunday School movement in England see Laqueur (1976).

39. Religious groupings in the early nineteenth century were brough together by a shared interest in rescuing the urban poor. Educationally and theologically they could be united on the assumption that the bible would be the sole source of lessons. Thus for instance, the first report of the Glasgow City Mission (1827) includes the ruling that the 'Holy Scriptures alone shall be the foundation of remarks made or exhortations delivered' (p.9). In a sense, then, the bible served as a tactical as well as an educational resource. Joseph Lancaster's system operated on a similar basis. The fact that it was 'non-sectarian' largely accounts for its greater success in Scotland, compared with the system of Andrew Bell. For an interesting discussion of the theological virtues of the different systems see H. Moncrieff Wellwoods, *'A sermon for the Lancastrian School'* (Edinburgh, 1812).

40. The earliest accounts of the Association of United Sabbath Day School Society (1808-9)contain no separate entry for 'rewards' whereas by 1812 such a category accounts for 52.6% of the expenditure of the Anderston and Calton schools. By 1814 the accounts also suggest that the Sunday School curricula had extended to writing since there is a reference to 'candles for the Anderston writing school'.

41. The role of Chalmer's in reorganising church, poor relief and schooling in parts of Glasgow on a congregational (i.e. local residential) rather than a parochial (cf. absentee landlord) basis is assessed in Drummond & Bulloch (1973). Chalmer's use of the term 'city peasantry' is recorded in the First Annual report of the Glasgow City Mission (1827, p.33). Further information about secessional schools in Glasgow is contained in the 1835 report of the Education Committee of the Church of Scotland General Assembly. Chalmer's own views can be found in *Considerations on the system of Parochial schools in Scotland* , (1819).

42. Sunday school pupil-teacher ratios in Glasgow seem to have been consistently low during the nineteenth century: 1819 (29:1), 1839 (19:1), 1859 (11:1), 1879 (9:1). (See Sabbath School Union for Scotland 3rd Annual Report, 1819: and Wildman, 1976 table 5I (A).)

43. Although Scottish Sabbath Schools resisted the monitorial system in their early years, they seem to have been suffused with the rhetoric, if not the actuality of industrial life. They were run by managers; held in Trades Halls; devised to 'accelerate the progress' of children; organised with 'no vacant (unproductive?) pauses' between the exercises; and regulated by means of 'attendance tickets' and 'premiums' (Sabbath School Union of Scotland, Third Annual Report, 1819, *passim*).

44. Both Wood's and Gall's educational 'systems' deserve further study. Wood's ideas - fashioned in the Edinburgh secessional school - were widely supported by the Dick Bequest Trustees (for use in schools in the counties of Aberdeen, Banff and

Moray) and by the General Assembly for use in its schools in the Highlands. Wood's methods represented a convergence of the monitorial system and a more naturalistic (Rousseau-derived) philosophy. The explanatory basis of Gall's system is illustrated by the following quotation: 'The means which it (the system) adopts in managing this (lesson) principle, are purely intellectual on the part of the pupil, who is excited principally by the proposing of questions and learning him to use his own resources in the concoction of his answers', (p.58). Gall also drew upon a naturalistic philosophy. He may have been influenced by Pestalozzi since his pamphlet reports a meeting with 'Dr. Mayo of Cheam' (p.36) who between 1819 and 1822 had taught in Pestalozzi's school at Yverdun, Switzerland.

45. The theological and educational significance of *extempore* practices deserves further attention. *Viva voce* teaching is discussed briefly in the *Report of the Select Committee on the Education of the Lower Orders in the Metropolis* (1816, pp. 251.316); and the historical importance of *extempore* prayers and sermons is touched upon in Lewis (1834, p.15). Laurie's account of the Lancastrian system (1810, p.xciv-xcv) discusses the importance of 'well-digested instruction, delivered into the ear' as a means of meeting the 'impetuous ardor (sic) of youth'. He also refers to the 'privilege' of aquiring '*viva voce* instruction'.

46. Training of the memory was closely associated with rote learning from books or, as Laurie put it, 'monkish ignorance and inaction' (1810, p. l xxiv). Against this background the anti-(school) book sentiments of Roussean, Pestalozzi, Owen and Stow represent a well-sustained historical continuum.. Their views,of course, should be distinguished from those who opposed the use of books on economic rather than educational grounds. The gradual shift away from book learning (scholasticism) and reading aloud made silence a relatively novel phenomenon in school life. Its pedagogical importance was noted, for instance, by Pestalozzi in his 'Letters on Stanz': 'The silence which I demanded...helped me greatly to achieve my aim... By the silence I made it possible to hear every mispronunciation, and furthermore, it enabled me to teach with

a soft voice, not a word being heard other than that which I spoke and which the children had to repeat' (quotation abridged, see Heafford, 1967, p.70). Similarly, in the 1790's, the Associated Teachers of New York City debated 'whether silence or studying aloud be the most conducive to the improvement of scholars in a public school' (Kaestle, 1973, p.62).

47. For a discussion of the rational-ethical basis of utilitarianism, and its connections with Scottish philosophy see Halevy (1955, chapter I). 'The Happiness principle' was first enunciated by Francis Hutcheson a professor of Moral Philosophy (and pioneer of vernacular instruction) at Glasgow University in the 1730's.

48. The advocacy of virtue through knowledge seems to have had some tangible results: 'In Scotland where almost all of them are educated more or less and numbers of them pretty well informed I presume that there are not more obedient, industrious and faithful servants anywhere' (Virginian slave overseer, quote in Genovese, 1975, p.193). Genovese's study of 'the world the slaves made' also contains an interesting discussion of the relationships between religion and discipline as, from a different perspective, does Thompson's *The Making of the English Working Class* (1968).

49. A relatively early account of The New Institution which includes much more detail than this paper is contained in MacNab's *The New Views of Mr. Owen of Lanark* (1819). MacNab refers to each of Owen's five apartments as a 'school' (p.105ff).

50. The origin of lofts and galleries in Scottish churches is discussed in Hay (1957); the placing of children in lofts is reported in Simpson (1947, p.21). The galleries in Owen's school were used primarily for visitors. Hay also comments that a 'common arrangement' for 'laird's lofts' incorporated one or more 'retiring rooms' (p.192 and figure 58).

51. As noted earlier Glasgow Grammar School had a system of annual promotion for each cohort of its intake. Another example is

Edinburgh Academy. The latter is historically interesting in that its plans (of 1823) illustrate the dual usage of the term classroom. They include four large class rooms, each with two smaller 'private' class rooms attached ('statement by the Directors of Edinburgh Academy', 1823). Note: The exact location of Miss Howell's class room at New Lanark has not yet been established.

52. Owen's view of Pestalozzi may have been influenced by two factors: Pestalozzi was over seventy in 1818, and Owen was over eighty when he wrote about the events. Owen's views on Pestalozzi should be compared with his equally uncharitable views on another important influence at New Lanark - James Buchanan (see Rusk, 1933, p.135-145).

53. The pamphlet written by Miss Whitwell in 1819 reports that an unnamed 'colleague' of Pestalozzi's had previously visited her: 'till that moment, I knew not of the admirable scheme for raising and dignifying the human mind, that is carrying on in the peaceful vale of Yverdun. Your Friend expatiated on your character, on your exertions, on your plans, till I believed an angel walked the earth in the likeness of man' (dedication). On a more temporal plane, Catherine Vale Whitwell may have been the painter of the widely reproduced picture (e.g. Simon,1960; Stewart & McCann, 1967) of the New Institution schoolroom. In 1824, for instance, she received a salary of £50 'for painting subjects of natural history etc.' (Cash Book). Whitwell's pamphlet also illustrates the strong links that existed between continental and Scottish philosophy. Although dedicated to Pestalozzi, its motto (on the front page) is a quotation from Dugald Stewart.

54. The historical significance of the New Lanark cash book (in Edinburgh University Library) is that it indicates the changes that took place within the New Institution over the period 1816-24. Further, neither Silver (1965), nor Pollard (1956) or Stewart & McCann (1967) identify Miss Whitwell's Pestalozzian interests and only Stewart & McCann refer, albeit obliquely, to Elizabeth Hamilton's *Pestalozzian Hints on Schools* (1815). Whitwell's pamphlet not only includes a discussion of the use of

blackboards it also describes what would now be called a Pestalozzian 'object lesson'. In *The Concept of Popular Education* (1965) Silver notes a discrepancy between the New Lanark curriculum as described by MacNab (1819) and that described by Owen (1824). The former comments that the infants at New Lanark (2 to 4 years) were taught the 'letters of the alphabet', whereas Owen reports 'that no attempt was made to teach them reading or writing' (see Silver, 1965, p.119). This discrepancy may be the result of faulty testimony but it could also be evidence of the introduction of Pestalozzian ideas.

55. My interest in the relationship between ideas and practices and between Pestalozzi and Owen owes much to Harold Silver's *The concept of Popular Education* (1965). In that book Silver argued that there was 'little in Pestalozzi's overall position to attract Owen' since the pattern of education at New Lanark was 'well established' before Owen toured the continent (p.150). Silver returns to the problem in *Robert Owen on Education* (1969) and acknowledges that the influence of Pestalozzi on arrangements at New Lanark was a late one' (p.226). Clearly, the New Institution Cas Book is an important source in this respect but, from an historical perspective, there is no unequivocal answer to the problem. Pedagogically, however, there is a more important general question. What counts as an 'influence'? How are the 'impact' and 'take-up' of ideas and practices to be analysed? For my part I think it is helpful to distinguish between ideas and practices. Ideas are relatively context-free, whereas practices represent the intersection of concepts and settings. Ideas, therefore, are always mediated (filtered, distorted,muted) by the context into which they are introduced. With respect to schooling, then, different ideas may appear as similar practices and, by the same logic, different practices may express the same idea. From its opening paragraph *The Concept of Popular Education* confronts this issue directly. Nevertheless, Silver's later statement that 'Owen's theories and practice were... formulated before he had any contact with the Continental educationalists' (1969, p.222) is not consonant with my own view that 'practice' cannot be 'formulated' in advance.

56. It is sometimes claimed (or inferred) that Owen's curriculum was novel because, among other things, it included various forms of music and movement. (The latest example is Deasey, 1978, p.50). As noted earlier, music and dancing had played a part in Dale's school and, as such, reached back to the musical forms followed in earlier Scottish schools. Owen's contribution perhaps, was to complete the translation of music and movement from the sacred to the secular curriculum via the introduction of military drill: 'Now as I had anticipated, dancing, music and military discipline, conducted on the principles of charity and kindness ... were among the best and most powerful surroundings for forming a good and happy character.... They give health, unaffected grace to the body, (and) teach obedience and order in the most imperceptible and pleasant manner' (Owen, 1857, pp. 141-42). Further evidence for such a transformation is contained in an earlier account by Pestalozzi and a later comment by Wilderspin: 'I learned the art of teaching a great number together ... The confusion of so many voices repeating my words, suggested the necessity of keeping time in our exercises' (Pestalozzi, 1801, quoted in Leitch, 1876, p.76); 'Music is to the infant school, what the moving power is to the wheel or machine' (Wilderspin, 1832, p.244).

57. In 1816 Francis Place estimated that the minimum annual cost of running a Lancastrian school was about twelve shillings per head (*Report of Select Committee... Metropolis*, 1816, p.474). In the period 1801-4 the costs at Lancaster's Borough Road School were closer to one pound per pupil (Lancaster, 1806, pp.13-19).

58. When Owen established his new partnerships in 1814 the shareholders agreed to take ~~on~~ an annual dividend of 5% on their capital. The annual returns of the works between 1816 and 1824 have been estimated at just over 15% on capital (Butt, 1977, p.200). Owen used the excess revenue to finance his experiments at New Lanark - augmenting it with profits from the village store.

59. The account of Robert Owen at New Lanark is lop-sided to the extent that I have preferentially focused upon issues not discussed elsewhere. A full account would, among other things,

look more closely at the cash book; at the industrial archaeology of New Lanark; at variations in staffing, enrolment and attendance; and at Owen's influence during the period 1800-1816.

60. David Goyder may have been the son of Thomas Goyder - the minister of the Swedenborgian church attended by both Wilderspin and Buchanan. Thomas Goyder also published Wilderspin's *On the Importance of Educating the Infant children of the poor* (1823).

61. In his earliest publication (1823) Wilderspin, unlike Owen, actually uses the words 'class room' but in a self-conscious manner (viz. 'in what we call the class room', p.18; 'for what is called the class room', p. 26). Wilderspin's writings are also interesting because they use the word 'lesson' in its old sense ('they go on until every child has said one lesson', p.18) and in a new sense ('The class that has done first is taken into a separate room, where the children have each another lesson, though in a different way from the first',p.18). Wilderspin then goes on to describe a form of class teaching. The earliest reference that I have found regarding a lesson as an interval of time is in Robert Dale Owen's *An Outline of the System of Education at New Lanark* (1824): 'Their attention is never confined too long to one object: a lesson for the day scholars, in any particular branch, never exceeding three quarters of an hour' (p.153). (Note the juxtaposition of 'attention', 'object'and 'lesson').

62. Seaborne (1971, p.143) comments firstly that 'it is not absolutely clear' why Wilderspin insisted on a separate classroom for the direct teaching of the children and secondly that Wilderspin 'hit on' the idea of the 'gallery lesson'. In my view, it is clear that the idea for the gallery lesson comes from Owen and Lancaster (albeit in a modified form) and that Owen was also the source of the separate class room idea. Note: there is a direct connection between the provision of classrooms and the supply of additional adult teachers.

63. There is not sufficient space in this account to provide full documentation of the apparent connections between Wilderspin and

his fore-runners, Owen and Pestalozzi. For the similarities in mathematics teaching see Wilderspin (1832, p.108) and *The relations and descriptions of Forms according to the principles of Pestalozzi* (1817, part one, p.1 ff.). For geography teaching see Wilderspin (1840, p. XIV) and Owen (1857, p.144). In both instances, of course, correlation is no proof of causality. Wilderspin may have had his Pestalozzian views reinforced by James Greaves, a former teacher at Yverdun who became secretary of the Infant School Society in 1824 (see below).

64. The fact that Stow visited Wilderspin's school in 1820 (i.e. within four months of its opening) suggests that he was reasonably familiar with educational developments in London. The source of his prior knowledge or the channels by which it was transmitted, however, are not yet clear.

65. For an extended account of Wilderspin's methods in setting up an infant school see the First Report of Edinburgh Infant School Society (1832).

66. In their earliest writings both Wilderspin and Stow quote the biblical maxim 'train up a child in the way he should go' (Wilderspin, 1823, p.6, Stow, 1833, p.32). Owen also used the phrase to 'train up a child from infancy in the way he should go' (A New View of Society, third essay, see Silver, 1969, p.101). Indeed, the importance of training (i.e. the creation of dispositions through activity rather than mere instruction) goes back at least as far as the *First Book of Discipline* (Knox *et al.*, 1560). Stow used the concept throughout his life - to the extent of retaining the biblical quotation as a motto in the tenth education of *The Training System* (1854). It is not yet clear whether the training motto is peculiar to Owen, Wilderspin and Stow since, for instance, it also appears as an inscription placed outside the Birmingham Anglican Blue Coat Boarding School in 1770 (see Adey, 1977, p.2). Was it the motto of an educational society?

67. The industrial revolution did not create the phenomenon of child labour, it merely changed its form (see Dunlop, 1912, *passim*).

68. Prior to 1834 the Education Committee of the General Assembly (or more accurately its Acting (i.e. executive) Sub-committee) had been dominated by Edinburgh men and its activities had been directed to the provision of 'Assembly' schools in the Highlands and Islands of Scotland.

69. Stow's views on the inherent limitations of Sunday schooling are reported in *Infant Training* (Stow, 1833, p.10). The development of interest in Model and Normal schools for teacher training can be traced in the General Assembly's Education Committee Reports (1826 onwards) and in *A History of the Training of Teachers in Scotland* (Cruikshank, 1970, chapter 2). Lowland schools began to obtrude into the Education Committees debates as a reaction to the one-sided focus of their report on the *Educational Statistics of the Highlands and Islands of Scotland* (1833). The report notes that although the Committee had not been charged with analysing the 'state of education in the Lowlands', it had still felt compelled to include the statement that 'there are upwards of 2,000 private schools (in the Lowlands), many of which are taught by men of whose sufficiency, before entering upon office, no trial had been taken (by the church)' (p.5). For a pamphlet offering the (anonymous) views of a private schoolmaster see 'The church and (private) schools, 1824'.

70. Despite a detailed review, Rusk (1928, p.47) failed to notice that the Glasgow Post Office Directories for 1830-31 and 1831-32 give different numbers for the address of the Drygate school. It is not yet clear whether this indicates the existence of two schools, a move from one school to another, a school with two extrance, a printing error, or the result of re-numbering by the post office.

71. William Fraser's *Memoir of the Life of David Stow* (1868) is not a very reliable source. It provides very little evidence of dates and, moreover, confuses *Glasgow Infant School Society* with its successor *Glasgow Educational Society* (see, for instance, p.87). Historians interested in Stow do not have an easy task. Although *The Training System* went to eleven editions, there is no trace of editions one, four and five.

Similarly, Robert Rusk's painstaking analysis of primary sources in *The Training of Teachers in Scotland* (1928) includes material from a 'Visitors Book' (1829-31) of the Infant School Society which, Rusk reports, is preserved in the 'library of Jordanhill Training College' (p.54, note 22). The College can find no trace of this book. Finally, anyone hoping to locate private papers relating to Stow has to contend with the fact that there is no one with that surname in the current Glasgow telephone directory. Despite his research Rusk is not always accurate. He suggests that Stow's 'juvenile school' was opened in 1831 and cites as evidence the fact that the teacher's name (Mr. J. Auld) first appears in the Post Office Directory of the year 1831-2. This is insufficient evidence since Mr. Auld may have taught at St. John's school before Stow was permitted to 'fit up anew' the schoolroom and 'convert' Mr. Auld (Fraser, 1858, p.125). Indeed, Mr. Auld's name appears in the Directory for 1829-30 (as 'teacher, Annfield School, Gallowgate') and there is no evidence on large scale maps of 1821 and 1840 to suppose that Annfield School was not the same as St. John's School, Annfield. Finally, tentative evidence of the later foundation of the juvenile school is to be found in Stow's *Infant Training* (1833) which refers to juvenile schools 'upon the Infant System' as being 'now proposed' (p.129). Rusk also indicates that Wilderspin paid 'two visits' to Scotland (p.56, note 61). If Wilderspin's testimony is accurate, the true figure is nearer five visits.

72. There is no date on the Glasgow Educational Society's 'Hints towards... a Normal Seminary' but Craigie gives the date as 1835 (Craigie, 1970, p.144). The original meeting (1834) of the Society (or Association as it was initially titled) makes no mention of forming a Normal Seminary (see Rusk 1928, pp.62-64). It was in the summer of that year that one of its prominent members (Dr. Welsh) made his visit to Prussia.

73. Although Stow's picture of a gallery lesson contains about 140 children, his text refers to 'sixty or eighty' children seated in a gallery (Stow, 1854, p.238).

74. Stow's main architectural contribution to the development of the classroom was that by stabilising the composition of teaching groups he also began to bring together the concept of classroom-as-adjunct and classroom-as-schoolroom. Historical sources differ as to the origins of the 'simultaneous' method. Monroe's *Cyclopedia of Education* (1911) gives the work of de la Salle (founder of the Christian Brothers) as its source, others (e.g. Brubacher, 1966, p.209) give Pestalozzi. In general, priority disputes make very limited historical sense but in this case there is a possible explanation for the different accounts. Pestalozzi certainly popularised class teaching whereas de la Salle, who predated Pestalozzi by a century, popularised the division of large schools into smaller classes. Unfortunately, the best English source on de la Salle (Battersby 1949, p.79 ff.) fails to distinguish between putting classes into separate rooms and teaching classes by maintaining the simultaneous attention of all the scholars. Andrew Bell also used the expression 'simultaneous' to describe the concurrent teaching of reading and writing (see Southey & Southey, 1844, Vol. 3, p.73). Further, in his otherwise extensive and detailed account of 'the origins of the school class' Aries describes the emergence of separate classes as a 'result of the passage - an incomplete passage - from the simultaneous pedagogy of medieval tradition to the progressive pedagogy which would carry the day' (1962, p.178). In this respect Aries is probably identifying 'simultaneous' instruction with lecturing rather than with socratic class teaching.

75. It is ironic, perhaps, that two of the most generous testimonials to Stow's work are reported in books which, by their titles, specifically exclude education in Scotland. In *The Training of Teachers: England & Wales 1800-1975* Dent considers that 'the impact of David Stow's Glasgow Seminary was probably even greater than is ordinarily suggested' (1977,p.14). Similarly in *The English School, 1370-1870,* Seaborne suggests that *The Training System* 'must have been one of the most influential books on educational practice published in the nineteenth century' (1971, p.144).

76. It is not the purpose of this paper to explore the spread of Stow's influence. Nevertheless in the late 1830's his ideas were transmitted to the U.S.A. by the phrenologist George Combe who recounted them to Horace Mann, secretary of the Massachussetts Board of Education and one of the most important practical educators of that period (see Cruickshank, 1970, p.229). Henry Barnard's *School Architecture* (New York, 1848) contained an infant school room plan 'condensed' from the designs of Wilderspin and Stow and included the writings of these authors in its bibliography. As noted earlier 'classroom' schools date back to the eighteenth century, but despite their endorsement by the Committee of Council in 1840 (see McNicholas,1974, p.11), they did not enter the realm of mass schooling until the 1870's. In the meantime Stow did much to popularise modes of teaching which, when finance and teacher supply improved, could be adapted for use in the multi-school-room building.

77. Robert Owen's comments on resources have already been noted with respect to the supply of teachers. David Stow expressed his views as follows: 'As a general principle, we must not expect to carry out the training system by merely having a trained master, unless we provide the platform and apparatus; nor by merely providing the platform and apparatus, without having a master properly trained. Both are requisite, and without this union, the system will certainly fail of its legitimate results' (Stow, 1839, p.4).

78. I'm very aware that my analysis is deficient. There is very little substantive material on (1) Robert Owen's membership of Scottish intellectual and educational networks; (2) eighteenth century charity schools in Glasgow; (3) the use and content of school books; (4) the Andersonian Institution; (5) the evolution of Glasgow Grammar school; (6) public health or (7) standards of living. From a more general stance my ignorance of developments elsewhere may have led me to over-estimate the importance of Owen and Pestalozzi. Similarly I recognise that my account of Stow is brief to the point of over-simplification. In the coming months I have the option

of reworking this ground or pushing forward to the 1870's. Either way there is much material that I've not yet had time to examine.

79. Two local studies with comparable interests and time-span are *Education, Industrialisation and Social Change: the Development of Schooling in Nineteenth Century Leeds* (Frith, 1976) and *The Evolution of an Urban School System* (Kaestle, 1973), a study of New York City between 1750-1850.

80. The distinction between ideas, practices and resources is, I recognise, only valid at the conceptual level since in practice, ideas are also resources. Nevertheless I still regard such distinctions as heuristically valid - to the same extent that it is possible in theoretical physics to talk about the speed and location of an electron without being able to differentiate these properties in practice (i.e. Heisenberg's uncertainty principle).

REFERENCES

An account of the system of education in the Belfast Academical Institution. Belfast: Printed by Joseph Smyth, 1818.

Adey, K.R. Birmingham boarding charity schools, 1724-1870. In History of Education Society Occasional publication No.2., 1977, pp. 2 - 8.

Aries, P. Centuries of childhood. New York: Vintage Books, 1962.

Atkinson T. Sketch of the origins and progress of the Literary and Commercial Society of Glasgow, 1831. (Printed for private circulation).

Battersby W. J. De la Salle: a pioneer of modern education, London: Longmans, Green, 1949.

Barnard, H. School architecture. New York: Barnes, 1848. (A version edited by J. & R. McClintock appears as No. 42 in the Classics in Education published by Teachers' College, Columbia University, 1970).

Belford A. J. Centenary handbook of the Educational Institute of Scotland. Edinburgh: Educational Institute of Scotland, 1946.

Biber, H. Henry Pestalozzi and his plan of education. London: John Souter, 1831.

Borrin Flint, M., A list of private tachers in Glasgow as revealed by the Post Office Directories, 1783-1830. Glasgow University Department of Education (mimeo).

Bowles, S. & Gintis, H. *Schooling in capitalist America*. London: Routledge & Kegan Paul, 1976.

Boyd. W. *Education in Ayrshire through seven centuries*. London: University of London Press, 1961.

J. S. Brubacher, *A history of the problems of education*. New York: McGraw-Hill, 1966.

Buchanan C., *Observations on schools, and on teaching some of the common branches of education*. Edinburgh: sold by Oliver & Boyd, 1824.

Burleigh, J.H.S., *A church history of Scotland.* London: Oxford University Press, 1960.

Butt, J., Robert Owen as businessman. In J. Butt (Ed.), *Robert Owen: prince of cotton spinners*. Newton Abbot: David & Charles, 1971, pp.168-214.

Chalmers T., *Considerations on the system of parochial schools in Scotland, and on the advantage of establishing them in large towns*. Glasgow: Printed by James Hedderwick, 1819.

Chapman, G., *A treatise on education*. Edinburgh: Printed for A. Kincaid and W. Creech, 1773.

Charconnet, M-G., *Peer tutoring*. Paris: Unesco division of methods, materials and techniques, 1975, (mimeo).

Cleland, J., *Annals of Glasgow (2 vols.)*. Glasgow: Printed by James Hedderwick, 1816.

Cordasco, F., *Introduction to a reprint of J. Lancaster's 'Improvements in education', 1805*. Clifton, New Jersey: Augustus Kelley, 1973.

Craigie, J., *A bibliography of Scottish education before 1872.* London: University of London Press, 1970.

Cruickshank, M., *History of the training of teachers in Scotland*. London: University of London Press, 1970.

Davie, G.E., *The democratic intellect*. Edinburgh: Edinburgh University Press, 1961.

Deasey, D., *Education under six*. London: Croom Helm, 1978.

Dent, H.C., *The training of teachers in England & Wales, 1800-1975*. London: Hodder & Stoughton, 1977.

Drummond, A.L. & Bulloch, J., *The Scottish Church 1688-1843.* Edinburgh: The Saint Andrew Press, 1973.

Dunlop, O.J., English apprenticeship and child labour: a history. London: Fisher Unwin, 1912.

Edgar, J., History of early Scottish education. Edinburgh: James Thin, 1893.

Fraser, W.,Memoirs of the life of David Stow. London: James Nisbet, 1868.

Frith, S.,Education, industrialisation and social change: the development of schooling in nineteenth century Leeds, a case study in historical sociology. Ph.D. thesis, University of California, Berkeley, 1977.

Gaelic Society of Inverness. Moral statistics of the Highlands & Islands of Scotland. Inverness: Printed for the Society, 1826.

Gall, J.,The effects of the lesson system of teaching on criminals, general society, and on the lowest orders of the human intellect. Edinburgh: Published by James Gall, n.d. (1830).

Genovese, E.D., Roll Jordan roll: the world the slaves made. London: Andre Deutsch, 1975.

Green, J.A. (Ed.), Pestalozzi's educational writings. London: Edward Arnold, 1912.

Goldstrom J.M., The social content of education 1808-1870 (A study of the working class school reader in England and Ireland). Shannon: Irish University Press, 1972.

Halevy, E., The growth of philosophic radicalism. Boston: Beacon Press, 1955. (Originally published in English in 1928).

Hamilton,E., Hints addressed to the patrons and directors of school; principally intended to shew, that the benefits derived from the new modes of teaching may be increased by a partial adoption of the plan of Pestalozzi. London: Printed for Longman, Hurst, Rees, Orme & Brown, 1815.

Hamilton, W., Discussions on philosophy and literature, education and university reform. Edinburgh: Blackwood, 1866. (3rd edition).

Hamilton, D., In search of structure: essays from a new Scottish open plan primary school. London: Hodder & Stoughton, 1977(a).

Hamilton, D., Classroom research and the evolution of the classroom system,1977(b). (Proposal submitted to the Social Science Research Council).

Hay, G., The architecture of Scottish post-Reformation churches 1560-1843. Oxford: Oxford University Press, 1957.

Heafford, M., Pestalozzi: his thought and its relevance today. London: Methuen, 1967.

Hobsbawn, E.J., The age of revolution 1789-1848. New York: Mentor Books, 1962.

Kaestle, C. F., The evolution of an urban school system (Norfolk City 1750-1850). Cambridge, Massachusetts: Harvard University Press, 1973.

Kelly, L.G., 2500 years of language teaching. Rowley, Massachusetts: Newbury House Publishers, 1969.

Kent, D.A., The parish school in north eastern Scotland in the early nineteenth century. History of Education Society, Occasional Publication No.3, 1977, pp.53-60.

Lancaster, J., Improvements in education. London: Printed by the author, 1806. (Sixth edition).

Lancaster, J., Plan for the introduction of Mr. Lancaster's System of Education into Scotland. Scots Magazine, 1810, 72, 112-114.

Lancaster, J., Hints and directions for building, fitting up, and arranging school-rooms on the British System of education. London: Printed by the author, 1811.

Laqueur, T. W., Religion and respectability: sunday schools and working class culture 1780-1850. New Haven, Conn.: Yale University Press, 1976.

Laurie, D., A project for erecting public markets and a grand academy on imporved principles in the Gorbals. Glasgow: Printed by R. Chapman, 1810.

Law, A., Education in Edinburgh in the eighteenth century. London: University of London Press, 1965.

Leitch, J., Practical educationalists and their systems of teaching. Glasgow: James MacLehose, 1876.

Lewis, G., Scotland a half-educated nation. Glasgow: William Collins, 1834.

McCallum, A. Old Pollockshaws - a survey of two hundred years. Old Glasgow Club, 3, 1913-18. pp. 344.

McCann, P. Samuel Wilderspin and early infant schools. British Journal of Educational Studies, 1966, 14, 188-204.

MacNab, H., A plan of reform in the mode of instruction, at present practised in English schools. Glasgow: Printed by Andrew Foulis, 1786.

MacNab, H.G., The New views of Mr. Owen of Lanark. London: Hatchard, 1819.

McNicholas, J., The design of English elementary and primary schools (a select annotated bibliography). Windsor: National Foundation for Educational Research, 1974.

Marrou, H.I., A history of education in antiquity. London: Sheed & Ward, 1956. (Translated by George Lamb from the third French edition).

Mathew, W.M., The origins and occupations of Glasgow students 1740-1839. Past and Present, 1966, No.33, 74-94.

Miller, P.J., Factories, monitorial schools and Jeremy Bentham: the origins of the management syndrome in popular education. Journal of Educational Administration and History, 1973, 5, 10-20.

Monroe, P., Acyclopedia of education. New York: Macmillan, 1911.

Mossman, L.C., Changing conceptions relative to the planning of lessons. New York: Teachers College, 1924. (Reprinted by AMS Press, New York, 1972).

Munimenta alma Universitatis Glasguensis (Records of the University of Glasgow from its foundation till 1727). Glasgow: Published in four volumes by the Maitland Club, 1854.

Murphy, J., The rise of public elementary education in Liverpool: part 2, 1819-1835. Transactions of the Historic Society of Lancashire and Cheshire, 1966, 118, 105-138.

Murray, D., Memories of the Old College of Glasgow. Glasgow: Jackson, Wyllie & Co., 1927.

Owen, R.D., An outline of the system of education at New Lanark. Glasgow: Printed at the University Press, 1824. (Quotations taken from the version in B. Simon (Ed.) The Radical Tradition in Education in Britain. London: Lawrence & Wishart, 1972).

Owen, R., Life of Robert Owen written by himself. (With an introduction by J. Butt). London: Charles Knight, 1971. (Originally published in 1857).

Owen, R.D., Threading my way. London: Trübner, 1874.

Pallister, R., Educational investment by industrialists in the early part of the nineteenth century in County Durham. Durham University Journal, 1968-9, 61, 32-38.

Parochial schools. Edinburgh Christian Instructor, 1828, 27, 184-139.

Pollard, H.M., Pioneers of popular education, 1760-1850. London: John Murray, 1956.

Pollard, S., The genesis of modern management. London: Edward Arnold, 1965.

Rusk, R.R., The training of teachers in Scotland. Edinburgh: The Educational Institute for Scotland, 1928.

Rusk, R.R., A history of infant education. London: University of London Press, 1933.

Saettler, P., *A history of instructional technology*. New York: McGraw-Hill, 1968.

Saunders L.J., *Scottish democracy 1815-1840: the social and intellectual background*. Edinburgh: Oliver & Boyd, 1950.

Seaborne, M., *The English school: its architecture and organisation 1370-1870.* London: Routledge & Kegan Paul, 1971.

Silver, H., *The Concept of popular education*. London: McGibbon & Kee, 1965.

Silver, H. (Ed.), *Robert Owen on education*. Cambridge: Cambridge University Press, 1969.

Simon, B., *Studies in the history of education 1780-1870*. London: Lawrence & Wishart, 1960.

Simpson, I. J., *Education in Aberdeenshire before 1872*. London: University of London Press, 1947.

Smith, A., *An inquiry into the nature and causes of the wealth of nations*, 1776. (Quotations taken from the two-volume edition edited by R.H. Campbell & A.S. Skinner. Oxford: Clarendon Press, 1976).

Smout, T.C., *A history of the Scottish people 1560-1830*. Glasgow: Collins, 1969. (Page numbers refer to the fontana paperback edition of 1972).

Southey R. & Southey, C.C., *The life of the Rev. Andrew Bell*. London: John Murray, 1844 (3 vols.).

Statement by the directors of the Edinburgh Academy explanatory of the scheme of that institution. Edinburgh: printed by John Hutchison, 1824.

Stewart, G., *Curiosities of Glasgow citizenship*. Glasgow: James MacLehose, 1881.

Stewart, W.A.C. & McCann W.P., *The educational innovators*. London: Macmillan, 1967.

Stow, D., *Infant training*. Glasgow: Printed for William Collins, 1333. (This work is undated and does not include Stow's name).

Stow, D., *Supplement to moral training and the training system*, Glasgow: McPhun, 1839. (Reprinted in 1971 by E.J.Morton, Didsbury, Manchester).

Stow, D., *The training system*. London: Longmans, Brown, Green & Longmans, 1854 (10th Edition).

The church and (private) schools, 1824. *Records of the Scottish Church History Society*, 1929, *3*, 79-80.

The relations and descriptions of forms according to the principles of Pestalozzi. Dublin: Sold by Martin Keene, 1817 (Author: Synge).

Thompson, E.P., *The making of the English working class.* Harmondsworth: Penguin Books, 1968.

Thomson, A., *Report by the chairman of the University removal committee with prefatory notice of the earlier university buildings*. Glasgow: Printed by Bell & Bain, 1877.

Wardlaw, R., *An essay on Mr. Joseph Lancaster's Improvements in Education including an abridged view of his plan of teaching, with a few remarks on some of its peculiar advantages.* Glasgow: Printed by R. Chapman, 1810.

Watson, F. (Ed.), *The encyclopaedia and dictionary of education.* London: Pitman & Sons, 1921.

Wellwood, H.M., *A sermon preached in St. Andrew's Church, Edinburgh on Friday 21st February 1812, for the benefit of the Lancastrian School in that city*. Edinburgh: 1812.

Whitwell, C.V., *Education: an address to the mothers in the British empire: in which a scheme of simplicity and economy is illustrated, and the establishment of a free school for the daughters of professional men who have lost their property, recommended*. London: G. Wilson, 1819.

Wilderspin, S., *On the importance of educating the infant children of the poor*. London: T. Goyder, 1823.

Wilderspin, S., *Early discipline illustrated; or, the infant system progressing and successful*. London: Westley & Davis, 1832.

Wilderspin, S., *A system for the education of the young.* London: James S. Hodson, 1840.

Wildman, R.A., *A social history of Scottish working class education 1800-1872 with particular reference to Glasgow.* Ph.D. thesis, University of Edinburgh, 1976.

Withrington, D., What is and what might be: some reflections on the writing of Scottish educational history. *Scottish Educational Studies*, 1970, *2*, 110-118 (a).

Withrington, D., Education and society in the eighteenth century. In N. Philipson & R. Mitchison (Eds.), *Scotland in the age of improvement.* Edinburgh: Edinburgh University Press, 1970, pp. 169-199 (b).

Wood, J., *Account of the Edinburgh sessional school*. Edinburgh: Printed for John Wardlaw, 1828.

David Hamilton,
Department of Education,
University of Glasgow.

THE EMERGENCE OF THE TERM 'CLASSROOM' AS AN EDUCATIONAL AND ARCHITECTURAL IDEA IN GLASGOW

While separate teaching rooms pre-date the eighteenth century, the term classroom seems to be associated with graded courses of study. Previously, the term 'class' referred both to a group of students and to the room in which they were taught (see Glasgow College Faculty minutes in the eighteenth century). There are two strands of the story in the late eighteenth and early nineteenth century; each one reflecting a different meaning of the word 'class'. The earliest usage - in Glasgow University - related to rooms which housed an entire cohort of students; a secondary usage related to rooms which housed a sub-group of students (see plan of Edinburgh High School, overleaf). These two concepts became fused by the middle of the nineteenth century.

1762 'The thirty second college chamber is assigned as a class room for the lectures in Civil Law' (Faculty minutes, 11 May).

1777 'These courts (at the College) consist of class rooms, two halls...' (J. Gibson, The History of Glasgow, first printed reference).

1806 Advert in the Glasgow Herald (November 1st) refers to Dr. Cleghorn's 'chemistry class room at the College'.

1816 Reference in J. Cleland's Annals of Glasgow to class rooms in the Grammar School.

1820 Proposals for the new Grammar School building include 'small anti-rooms (sic) or libraries attached to each (apartment) for the use of the masters' (Minute Book of Glasgow Grammar School, 29th May, Mitchell Library, Glasgow).

1822 Reference to the setting up of a 'small room in new building' at New Lanark for 'Miss Howell's class' (New Lanark Cash Book, Edinburgh University Library).

1823 'Classroom' used by S. Wilderspin to refer to ante-rooms (see On the Importance of Educating the Infant Poor, p.18).

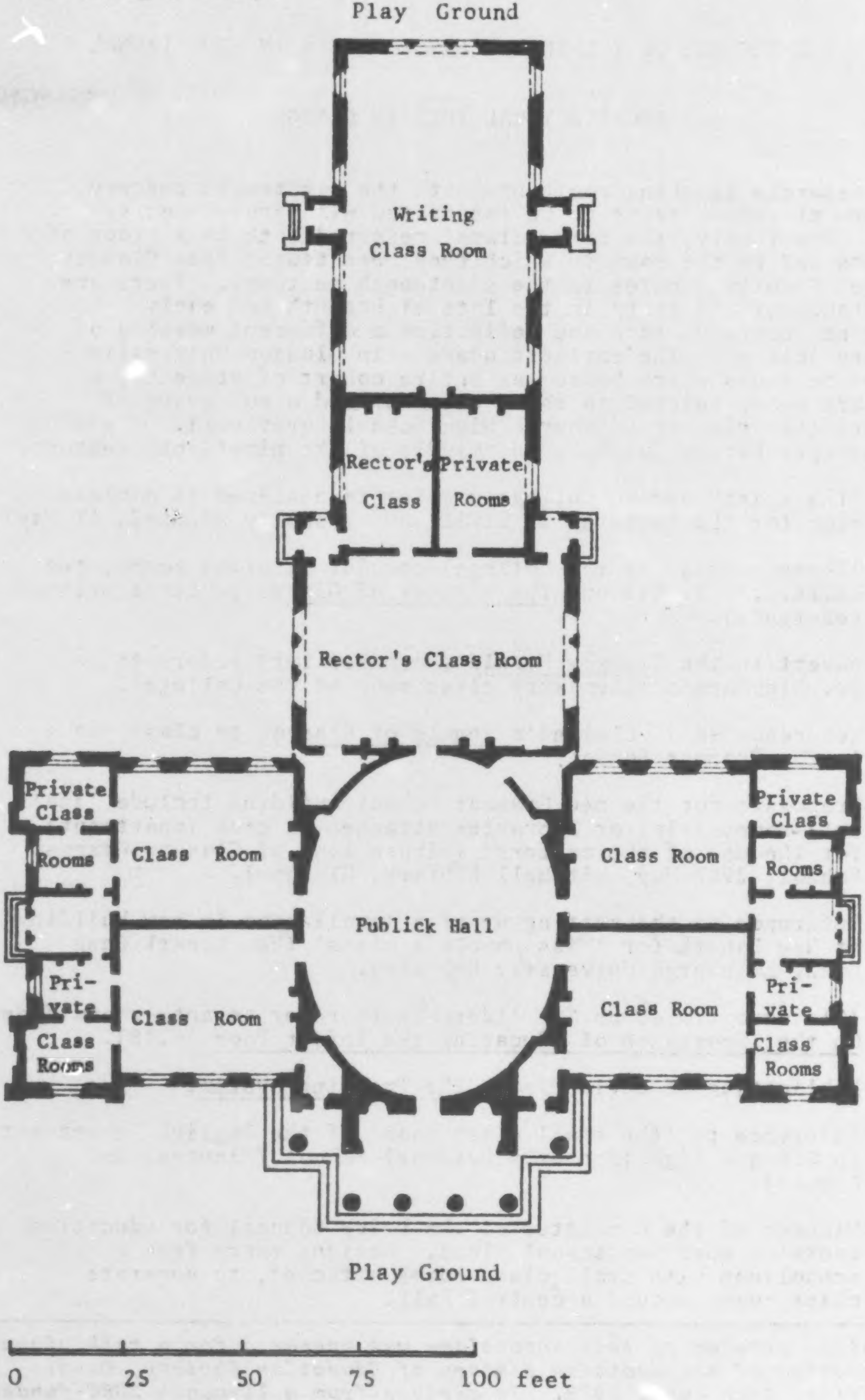
1836 Publication of David Stow's The Training System.

1837 Reference to 'the small class room' of the English Department in Glasgow High (formerly Grammar) School (Minutes, 2nd August).

1840 Minutes of the Committee of the Privy Council for Education contains specimen school plans. Designs range from a schoolroom with small class rooms attached, to separate class rooms around a central hall.

An earlier version of this chronology was prepared for a talk given at a meeting of the Scottish History of Education Society, Dundee University, 24th June, 1978. It derives from a 12-month SSRC-funded project on Classroom Research and the Evolution of the Classroom System *(Grant HR/5127).*

(Redrawn to scale from *Statement by the directors of the Edinburgh Academy explanatory of the scheme of that institution*, Edinburgh, 1824).



September 19th 1978.

CORRESPONDENCE THEORIES AND THE PROMISCUOUS SCHOOL: PROBLEMS IN THE ANALYSIS OF EDUCATIONAL CHANGE

David Hamilton
Department of Education
University of Glasgow

> *"The schools are in a great measure promiscuous. Each teacher has too many classes to attend to and too many branches to be taught successfully... The same number of teachers would, with properly assorted classes do double the work; and promote education to the same extent. But it is morally impossible that teachers, mainly dependent upon fees, can ever in such a place as this attain to a due division of labour".*
>
> (Duncan Macfarlan, Minister of Renfrew, 1836).

During the last twelve months I have had occasion to study a Glasgow school which, over a period of about fifty years, not merely changed its name to keep up with the times but also underwent dramatic fluctuations in its enrolment; moved its site on two occasions; modernised its classical curriculum; and successively abolished, reinstated and then reabolished the position of rector (head teacher).

These educational changes occurred during a historical epoch - the industrial revolution - which is also remembered for equally dramatic social, economic and political transformations. The problem that I want to discuss in this paper concerns the formulation of a reasonable framework for reporting the interpenetration of these two distinct data sets. In a phrase suggested by Peter Woods (conference convenor) this essay addresses the 'middle ground' of schooling. For my part I am specifically interested in the articulation of pedagogy and production.

Reductionism and functionalism in Educational Theory

I take it as axiomatic that education is intended to intervene in the process of social and individual change. As

---

An earlier version of this paper was circulated at an Open University/ SSRC Conference on 'Teacher and Pupil Strategies' held at St. Hilda's College, Oxford, September 15th - 17th, 1978. It derives from a 12-month SSRC-funded project on 'Classroom Research and the Evolution of the Classroom System' *(Grant HR/5127).*

a corollary, I also assume that any account of pedagogic phenomena (e.g. learning, schooling) must, overtly or covertly, incorporate a model which allows for such a change.

Typically, educational writers have injected a dynamic dimension into their analyses by using biologically-derived concepts such as 'growth' and 'reproduction'. Nevertheless, naturalistic interpretations have always been susceptible to the complementary temptations of reductionism (i.e. explaining social behaviour in terms of more primitive, usually biological mechanisms) and functionalism (i.e. explaining behaviour as the result of ecological adaptation to external forces).

Both Bennett's Teaching Styles and Pupil Progress (1976) and Bowles & Gintis' Schooling in Capitalist America (1976) display a biological tendency. The former comes close to regarding teaching style as a character trait while the latter builds heavily, if unevenly, upon the presumption of a correspondence (or symbiotic) relationship between 'school structure and job structure' (p.13).

The complementarity of reductionist and functionalist perspectives is also evidence in discussions about the relationship between schooling and society. At the reductionist extreme, schooling is treated simply as a case of society-writ-small; at the functionalist extreme, school and society are treated as if they stand in a unity-of-opposites relationship to each other.

Reductionist and functionalist analyses are powerful because of their ability to explain away educational problems. They create coherent accounts through the invocation of non-educational mechanisms (e.g. 'intelligence', 'the economy') which nonetheless, remain as mystifying as the original educational phenomena. For instance, in the studies already cited, classrooms and learning outcomes are, respectively, explained in terms of factories and teaching styles. In short, priority is given to economic and psychological forces. However, neither Bennett nor Bowles and Gintis pursue the telling question 'how did these co-relationships arise?' Bennett seems to ignore the historical dimension while Bowles and Gintis offer a telescoped analysis which reads too easily as a chain of mechanistic processes.

The process of 'explaining away' is consolidated when these authors justify their accounts through an appeal - characteristic of positivism - to the court of internal consistency. The correspondence between theory and data which they cite to support their arguments derives, in fact, from the use of a circular rationale which, in turn, is confirmed through the initial selection of conforming instances (cf. Bennett's use of cluster analysis) and/or the subsequent rejection of deviant cases (cf. Bowles and Gintis' secondary use of histories which had originally been compiled around pure uncomplicated instances).

In my view reductionist and functionalist analyses barely count as educational theory. At best, they are a plausible mirror of educational practice. At worst, they describe everything but reveal nothing.

The theoretical poverty of modern educational research is well illustrated in The Study of Teaching (Dunkin & Biddle, 1974). Its authors focus preferentially upon research into 'conventional classrooms'; that is, other settings are ignored. Having taken such a narrow definition, Dunkin and Biddle's conclusion that 'the process of teaching is surprisingly invariant across the United States and throughout the western world' (p.32) has already been prefigured in their selection of relevant research studies. Their analysis is tautologous. It creates about as much 'surplus value' (Bruner, 1974, p. 234) as the statement that 'chalk and talk teachers tend to stand nearer the blackboard'.

If educational research is to break out of the vicious circles created, variously, in the interests of coherence and correspondence, it must be better equipped to comprehend (in both senses of the word) not only the correspondences but also the inconsistencies, contradictions and non-correspondence relationships of education. The consequences of such an approach are eminently practical since today's non-correspondences, like yesterdays promiscuities may well point to the commonplaces of tomorrow.

The Description of Change

A further pre-requisite for theoretical breakout is the abandonment of relatively static (or reified) concepts. Terms such as 'Intelligence', 'factory system', 'hidden curriculum', 'traditional teaching', relate not to objects but to relationships.

The 'essence' of intelligence cannot be revealed through a study of what is deemed to be intelligent behaviour. Likewise, questions of the kind 'what counts as a factory system, hidden curriculum, or traditional teacher?' cannot be deduced from a study of factories, hidden curricula or traditional teaching. They can only be answered by standing outside such categories and studying different forms of behaviour, production, curriculum and teaching.

Concepts, then, have the same kind of correspondence with their object, as map projections have with the globe. They draw attention (i.e. reveal) certain aspects while relegating others to the background. To be of practical value they should express something more than the appearance of a phenomenon. A concept like 'hidden curriculum' only comes to life when it is combined with the notion of a visible curriculum. Hidden and visible curricula, therefore, are not separate entities but different aspects of the same phenomenon.

To distinguish aspects from entities has implications for the analysis of change. If concepts refer to entities it is very difficult to describe the transition from one entity to another (except by invoking some kind of catastrophe theory). On the other hand, if they are treated as different aspects, then transition can be more readily characterised in terms of the relative ascendancy of the different forms.

An analysis that builds upon aspects rather than entities is open-ended. Just as hidden and visible curricula are different aspects of curriculum so curriculum is also an aspect of some other phenomenon. By this chaining process the interconnection between different phenomena can be explored. Teaching and learning, for instance, can both be identified as labour processes associated with education; factories and schools can be analysed as centres of production; and curriculum and teaching can be examined as the complementary (i.e. objective and subjective) aspects of the learning process.

Certainly, the formulation of theoretical linkages begs further questions (e.g. what counts as production in the educational sphere?). Nevertheless, in doing so, the bridge-building (or surplus value) potential of theory is acknowledged. Theoretical generalisations of this kind bring together apparently dissimilar phenomena and in doing so, reveal hitherto unrecognised connections. They allow the same coding frame, as it were, to be applied to the nineteenth century monitorial system and the twentieth century open-plan school - a procedure that, despite the promise of their respective titles, would be impossible with the tools employed by Bennett or Dunkin & Biddle.

To illustrate my argument: I believe that the monitorial system and open plan schooling can be characterised as 'transitional pedagogies'. They were both associated with major demographic shifts, with related programmes of school building and with novel sets of educational goals. Of course, such an analysis raises the question 'What are they transitional to and from?'. The historical record can provide the full answer in the case of the monitorial system, but only half the answer in the case of the open plan school. However, given an appreciation of the fate of the monitorial system, and given an understanding of modern open plan schooling, it may be possible to identify the future-in-the present with a little more clarity than might otherwise be the case.

The analysis of causation

From an historical perspective, the description of change can yield a plausible and coherent account of educational phenomena. However, a practical, future-oriented perspective needs another dimension. It must incorporate some indication of the motive forces that create change. In order to conduct an informed experiment, it is necessary to know where to break into the causal nexus.

The general problem of causality in education has been tackled in various ways. Many accounts (including that of Bowles and Gintis) avoid the causal issue by locating the mainsprings of educational change outside the educational system. To do so, however, is to deny that education has any economic significance. A second approach is to argue that the education system always trails a certain distance behind the economy in a non-correspondence relationship. This 'coupling' analysis also implies that the education system is parasitic on the economy.

A third approach is to suggest that the co-existence of the education and economic systems can be best explained in terms of a lead-lag relationship. It is supposed that schooling and the economy are successively pushing and pulling each other along via a series of correspondence and non-correspondence relationships. The lead-lag explanation analysis is also inadequate. It is merely an elaboration of the correspondence theory since it still relies on the overall assumption that the leads and lags are temporary disruptions of a basically stable relationship. (Cf. the functionalist argument that wars serve to keep the peace).

Nevertheless, if schools are supposed to be in the 'lead' at certain times it is difficult to explain such prominence - except by citing specific educational forces. To adopt this last standpoint is in fact, to advance a theory of non-correspondence.

My own feeling is that such complications arise because education and the economy are treated as separate entities. If they are seen as different aspects of the same system (viz. that which ensures the reproduction of social life), the difficulties disappear. Correspondences and non-correspondences can co-exist within the same system. Furthermore, a causal account can be built up around both the antagonism created by the non- correspondence relationships, and the efforts made by human beings to overcome them. The process does not restore an equilibrium but, as recorded in the quotation at the head of this paper, creates further non-correspondence relationships among other elements in the system.

Summary and bibliographic note

This paper records a process of historical and intellectual development. It began with two problems: one relating to the description and explanation of change; and the other relating to the articulation of education and production. It argues that much educational research is unable to surmount these problems because it continues to trade in static entities (e.g. traditional teaching) and/or false polarities (e.g. education/economy). In the course of its discussion the paper begins to move to a position that there is really only one problem since the analysis of educational change is also inextricably bound up with the relationship between pedagogy and production.

In tackling these problems I sought guidance, albeit in vain, from the writings of British and American educational historians. After much floundering, I found the most thought-provoking discussions of the change issue in works by a Pole (Topolski, 1976), an Australian (Stretton, 1969) and a Russian (Ilyenkov, 1977). Likewise, I found some seminal work on the historical question in an international debate (see Hilton, 1976) initiated by a Cambridge economist (Dobb, 1946).

References

Bennett, N.	*Teaching Styles and Pupil Progress.* London: Open Books, 1976.
Bowles, S. & Gintis H.	*Schooling in Capitalist America.* London: Routledge & Kegan Paul, 1976.
Bruner, J.	Going beyond the information given. In J. Bruner, *Beyond the Information Given.* London: George Allen & Unwin, 1974. pp.218-238: (Originally published in 1957).
Dobb, M.	*Studies in the Development of Capitalism.* London: George Routledge & Sons, 1946.
Dunkin, M. & Biddle, B.	*The Study of Teaching.* London: Holt, Rinehart & Winston, 1974.
Hilton, R. (Ed.)	*The Transition from Feudalism to Capitalism.* London: New Left Books, 1976.
Llyenkov, E.V.	*Dialectical Logic.* Moscow: Progress Publishers, 1977. (Originally published in 1974).
Stretton, H.	*The Political Sciences: General Principles of Selection in Social Science and History.* London: Routledge & Kegan Paul, 1969.
Topolski, J.	*Methodology of History.* Dortrecht, Holland: Reidel, 1976. (Originally published in 1974).

- - - - - - - - - - - -

October 23rd 1978.

ON GENERALISATION IN THE EDUCATIONAL SCIENCES

DAVID HAMILTON
Department of Education,
University of Glasgow,
Glasgow G12 8QQ,
Scotland.

This paper argues that, historically and analytically, generalisation has developed two distinct meanings in educational research. It can be regarded either as an objective logical activity concerned with relating populations to samples, or as a subjective, cognitive process directed towards linking 'like with like'. By suggesting that the relationship between the logical and cognitive viewpoints is closer than current research practice would allow, the paper attempts to locate (or relocate) field-based methodologies more adequately within the current context of educational inquiry.

This paper has been prepared for a conference on **The Study of Schooling: field-based methodologies in educational research** *organised by the Wisconsin R & D Center for Individualised Schooling (University of Wisconsin, Madison) and held at the Wingspread Conference facility, Racine on 5 - 8th November, 1978. It derives from a 12-month SSRC-funded project on* **Classroom research and the evolution of the classroom system** *(Grant HR/5127).*

Field work in educational research has a long history but a short memory. Its apparent lack of cumulative wisdom marks it out as an immature field. It operates with standards that are borrowed rather than created. Its identity remains subservient to the values and criteria of the dominant research paradigm.[1]

In a sympathetic review, for instance, Mehan criticises 'field study' researchers for failing to provide details of their sampling procedures. He acknowledges that field studies are characterised by 'detailed descriptions' but claims at the same time that:

> 'it is difficult to determine the representativeness of the events described and, therefore, the generality of findings derived from them'(1978, p.35).

From the tone of his article Mehan associates representativeness and generality with statistical (or set-theory) concepts of frequency. In turn, he seems to regard their derivation as unproblematic - simply a matter of providing criteria whereby set membership can be established.

In practice, of course, the generality of an event or setting is not a unique characteristic. A typical inner-city school can, just as easily, be labelled as an atypical all-American school. Further, the establishment of set boundaries and the selection of membership criteria rests, ultimately, upon the perception or recognition of similarities among different phenomena.[2] Subsequently, it may be possible to reduce pattern recognition to a set of formal logical operations but the initial exercise of human judgement cannot be avoided. To generalise is also to recognise.[3]

---

[1] The dominant paradigm in educational research - 'psychostatistics' (Fienberg, 1977), 'scientific psychology' (Cronbach, 1957) or the 'agricultural-botany' paradigm (Parlett, 1972) - is closely linked with the practices of experimental and correlational analysis. Fieldwork is less easy to characterise - largely because it lacks the coherence of psychostatistics. Although the terms fieldwork and field-based methodologies are used interchangeably in this paper, the latter is probably a more accurate label. General accounts of field-based methodologies in educational research can be found in Adelman, Jenkins & Kemmis (1976), Smith (1978) and Walker (1974). A concise discussion of 'field' as a methodological issue can be found in Schatzman & Strauss (1973, pp.1-3).

Insofar as Mehan treats generalisation simply as a technical issue he commits the same offence as those who fail to make a distinction between the educational and statistical significance of a datum. If such is the case, Mehan unwittingly shows deference to the 'British empiricist tradition' which, elsewhere in the review, he forcefully rejects (pp. 33-34).[4]

Methodological false-consciousness of a similar kind occurs in Diesing's Patterns of Discovery in the Social Sciences (1972). In a review of 'types of method', Diesing discusses participant observation research in terms of its aspiration to address all aspects of a single 'self-maintaining social system'. He suggests that as a consequence, the researcher's task is to portray:

---

[2] Problems associated with the perception of similarities and the identification of set membership are the subject of detailed exploration in 'The imagination of the case and the invention of the study' (Kemmis, 1977).

[3] Fieldwork tries to grasp the interpenetration of the cognitive (theoretical) and formal (methodological) processes of research in its development of such concepts as 'theoretical sampling' (Glaser & Strauss, 1968, chapter 3), 'critical incident' (illustrated in Walker & Adelman, 1976), 'foreshadowed problem' (Malinowski, quoted in Smith & Geoffrey, 1967,p.5), and 'progressive focusing' (Dearden & Laurillard, 1977).

[4] British empiricism grew out of tabula rasa mental philosophies in the nineteenth century. It assumed that sense data (or facts) are given unequivocally to the mind and that science comprises the manipulation of variables in the interests of elucidating empirical laws (or summary facts). When modern research is dazzled by the blandishments of technique and methodology, it becomes vulnerable to the shortcomings of empiricism. By the same token, when it becomes totally absorbed by theory it tends towards formalism and scholasticism.

> 'The individuality or uniqueness of the system, its wholeness and boundedness, and the ways it maintains its individuality. The primary objective is to describe the individual in its individuality' (p.5).

Diesing's encapsulation is one-sided because it fails to acknowledge the fact that uniqueness also implies generality. A school may be individual and unique but it is still part of the generality of 'all schools'. Similarly, the individuality of a setting is established by differentiating it from other instances. 'Individuality' and 'uniqueness' (as Diesing carefully acknowledges elsewhere in his review) are not inherent or absolute properties like 'mass' or 'age'. They are relational concepts which point to the empirical and conceptual connections that can be forged among a given set of instances.

Mehan's comments on generality, and Diesing's review of individuality are opposite sides of the same coin. Both authors share a valid concern for the elucidation of commonalities and differences. Yet, their arguments are weakened by uncritical usage (in Mehan's case) or tacit rejection (in Diesing's case) of the logic of set-theory reasoning. Consequently, the link between field-based methodologies and other forms of research is distorted. It is defined as a relationship of inferiority (Mehan) or discontinuity (Diesing).

As metaphysics is to physics, field-based methodologies are located somewhere beyond the conventional boundaries of logic and science.[5] At best, they perform an ancillary, service function by providing 'rich descriptions' (Mehan, p.35) and 'accounts from the inside' (Diesing, p.7). The place of field-based methodologies is thereby ensured - but at a considerable cost. The mainstream culture is allowed to retain proprietorial rights over the realm of objective facts, quantitative analysis and law-like generalisation.

---

[5] Campbell & Stanley's influential paper on 'experimental and quasi-experimental designs for research on teaching' complained that one-shot case studies were the product of 'misplaced precision' and, further, that it was 'well-nigh unethical' to allow them to be the basis of student dissertations (1963, p.177, emphasis in original). More than a decade passed before Campbell pulled back from his earlier position (Campbell, 1975).

To accept such an account of research is to assume the vulnerability of field-based methodologies. As already suggested, however, the dominant paradigm is equally vulnerable. Its security is illusory - merely a facade persuasively buttressed by the technical rhetoric of empiricism.[6] For instance, the difficulties that Mehan specifically ascribes to generalisation in fieldwork are common to all research. They arise because the general goal of research is to go 'beyond the information given' (Bruner, 1957). The gap between sampling and generalisation that psychostatistical research attempts to bridge is directly analogous to the gaps that, elsewhere, separate description from inference, observation from analysis, reliability from validity and, above all, theory from practice.

The remaining four parts of this paper take a closer look at the gap between the known and the unknown. The first part outlines the emergence and subsequent criticism of the traditional empiricist and statistical approach to knowing and generalisation (viz. the 'received view'). The second section examines the logical and psychological underpinnings of the received view. The third part discusses certain limitations of an alternative or 'craft' view of generalisation - one that has strong links with cognitive psychology. And the final section suggests a basis for going beyond the shortcomings of the received and craft viewpoints. Overall, the paper is an attempt to reconceptualise some of the taken-for-granted assumptions of educational research.

---

[6] The manipulations of inferential statistics appear coherent and common-sensical because they are stabilised on the basis of assumptions embedded in 'if' clauses. For instance, the uniformity of nature assumption is invoked by Hays when he builds an argument on the statement: 'if repeated observations are made under identical conditions' (1963, p.7). Needless to say, Hays does not dwell on the fact that his 'if' clause contains a logical contradiction: when observations are repeated, time has passed and the initial conditions have necessarily changed.

Cronbach (1976) discusses further examples of equivocation which can arise when different units of analysis (e.g. pupil vs class) are used to assess the statistical effects of different treatments. He suggests that, in certain contexts, aggregate data are preferable on theoretical grounds but recognises that educational research is conventionally married to methodological individualism - a view that was taken over, like much of statistical reasoning, from nineteenth century biology and psychology (pp. 1.1 & 10.10). Methodological individualism and the uniformity of nature assumptions are closely linked. They were pivotal ideas in John Stuart Mill's seminal text - A System of Logic (1843; see Lukes, 1970; and Winch, 1958, passim).

FROM THE RECEIVED VIEW TO RELATIVISM

In the late nineteenth century there was only one fashionable form of knowledge in Britain and the U.S.A. - 'scientific' knowledge. The dominant philosophical traditions - empiricism and pragmatism - down-graded other forms of knowing (e.g. intuition) and relabelled them as 'non-science' or 'metaphysical'. The primary philosophicl concern - which had been clearly reiterated through the years by Bacon (1561-1626), Locke (1623-1704), Mill (1806-1873) and James (1850-1910) - was to extend and clarify the 'scientific' method.[7]

The pursuit of scientific rigour diversified during the twentieth century and became attracted to logic (e.g. Dewey), mathematics (e.g. Russell and Whitehead) and language (e.g. Wittgenstein). In the process, western philosophy of science broke free from the holistic concerns of its continental cousins and became absorbed with elaborating an internally consistent and rule-governed logic - the hypothetico-deductive method - which could be applied uniformly to the natural and social sciences.

After the Second World War this school of thought - despite various internal differences - dominated discussion of the question 'what counts as good science?'. In short, its ideas became the 'received view' (Suppe, 1974). It focused unilaterally upon the logical and statistical manipulation of factual propositions. The world was treated as little more than an assemblage of discrete facts or atom-like variables. Cognate issues pertaining to the creation or valuation of knowledge were handed over to psychologists and moral philosophers.[8]

---

[7] An important assumption underlying the construction of this paper is that the meaning of words like 'scientific', 'logical', 'empirical' and 'experimental' has varied according to the historical and cultural settings in which the terms have been used.

[8] The received view of science was not universally adopted. More unified standpoints - most of them harking back to Hegel - survived beyond the pale of anglo-saxon discourse.

Renaissance man went missing and his effects were sold off to relative newcomers on the academic market place.

The received view of science remained relatively undisturbed until the 1960's when it began to be challenged from the inside. Works like Kuhn's The Structure of Scientific Revolutions (1962) and Feyerabend's Against Method (1971, 1975) successfully undermined the received view by giving credibility to the counter-proposition that the practice of good (or successful) science has only tenuous links with the kind of logical games elaborated by proponents of the received view.[9]

Feyerabend made this point explicitly:

> 'One of the most striking features of recent discussions in the history and philosophy of science is the realisation that developments such as the Copernican Revolution...either occurred because thinkers decided not to be bound by certain 'obvious' methological rules or because they unwittingly broke them (1971,p.22, emphases in original).

As is well known, Kuhn's work has had a major influence on the social sciences. Among other things, it is cited to support the claim that there is (or may be) more than one framework (or, in Kuhn's terms, 'paradigm') for the analysis of social life. To the extent that this claim has been successfully registered, a one-dimensional view of science (e.g. hard/soft) has been replaced by a contrasting model whereby different strategies are given parity and held to be equally valid. In certain quarters, then, an egalitarian, relativistic framework has replaced the hierarchical absolutism of empiricism.

---

[9] The twentieth century career of the received view is summarised in Hesse (1974, chapter 1) and Tavanec and Svyrev (1974). One early criticism came from the French chemist Duhem who suggested that the conduct of science is better described as a multi-dimensional than as a linear process. Duhem maintained that science advances through the disruption of successive theoretical networks rather than through the pursuit of a linear sequence of crucial experiments. A second criticism came from the Austrian mathematician Gödel who showed that a closed system of formal propositions is necessarily equivocal. These two interventions have an up-to-date significance for educational research: they are basically the same charges made by Cronbach in 'Beyond the two disciplines of scientific psychology' (1975).

One of the methodological consequences of this shift has been a call for greater pluralism and eclecticism in research.[10] The break-up of the received view may be hastened by such an appeal but, in the long run, the pluralist principle remains a very unstable basis for the conduct of research. It disturbs rather than replaces the status quo - particularly if it fails to provide a basis for choosing among different methodologies or paradigms. By treating the question 'what is a scientific methodology?' as unanswerable, it automatically shelves the question 'what is a good methodology'?

If the foregoing analysis is correct, the educational sciences (both in Britain and the U.S.A.) currently lack the sense of direction that they had ten years ago.[11] Small islands of counter-culture have been created but the received view still prevails - both in terms of the number of its adherents and the influence of its allegedly superior logic.

GENERALISATION AND THE RECEIVED VIEW

The problem of generalisation within the philosophy of science has traditionally been treated as a problem of induction.

---

[10] Perhaps the most flamboyant expression of a pluralist proposition is Feyerabend's claim that the growth of science is best served by the methodological canon: 'anything goes' (1971, p.26). Despite its anarchistic tenor, Feyerabend's principle should not be equated with mindless eclecticism: 'anything goes' is not the same as 'everything goes'. Similarly, it is possible to argue that research methods are historically and culturally 'relative' without accepting the strong relativistic viewpoint that they are all equally 'scientific'.

[11] It is not easy (or perhaps even useful) to date the climatic changes in American educational research. Nevertheless, in the context of classroom studies, the publication in 1968 of Jackson's Life in Classrooms and Smith & Geoffrey's Complexities of an Urban Classroom marked a shift away from the psychostatistical paradigm. More recently, two major addresses at the 1974 American Psychological Association's annual meeting - Campbell's 'qualitative knowing in action research' and Cronbach's 'Beyond the two disciplines of scientific psychology' - placed similar discussions before an even wider audience.

If every observed swan is white, so the argument runs, is it possible to infer (or make a generalisation) that all swans are white? Sceptics like David Hume (1711-1776) argued that inductive inferences have a lower truth value than deductive conclusions. Other philosophers (e.g. John Stuart Mill) argued that inductive generalisations could be raised to the same status as deductive conclusions if they were also linked to the assumption that nature extends uniformly through time and space.[12]

Deductive and inductive standpoints rest on certain distinctions that have been crucial to subsequent debates on the relationship between scientific logic and practice. First, Hume's argument, like the elaborations of statistical theoreticians, relates to the logical structure of scientific discourse; whereas Mill's argument, like that of Feyerabend, focuses upon the operational (and utilitarian) basis of scientific practice. Secondly, Hume appeals to uncertainty (e.g. tomorrow may not be like today) whereas Mill - in the interests of action - holds to a more optimistic outlook (e.g. tomorrow will be the same as today).

Since the days of Hume and Mill, philosophers have tried to find a middle way between logic and practice, certainty and uncertainty. Their goal, as noted above, has been to create a useable theory of generalisation or, in a phrase used by the statistician Ronald Fisher, an 'operational inductive logic' (1950), which could approach the truth status of deductive logic.[13]

---

[12] Although the uniformity of nature assumption is most closely associated with the name of John Stuart Mill, analogous restatements have been made in the twentieth century by Keynes, and Russell & Whitehead (see Theobald, 1968, p.68).

Some of the earliest practical work on these problems was conducted outside conventional philosophy by mathematicians interested in the calculation of risks in insurance and gambling (see Hacking, 1975 and Maistrov, 1974). By the end of the nineteenth century, however, theories of chance and classical logic had come together in a developed mathematical theory of probability. In turn, it became possible to talk about inferences that were neither true nor false, but probable. Subsequently, probabilistic notions were elaborated via the operationalisation of such common-sense terms as 'likelihood', 'confidence' and 'estimation' (see Hacking, 1965, chapters 5, 9 & 10).

Despite these important developments, modern statistical analysis (as used in educational research) still relies heavily on assumptions about the uniformity of nature. The generalisability theory developed by Cronbach and co-workers (Cronbach, Glaser, Nander & Rajaratnam, 1972) provides an illustration. It is limited to problems where the 'universe of admissable observations' is identical to, or includes, the proposed 'universe of generalisation' (p.20). Instances where the 'universe of generalisation' includes conditions not present in the sample chosen for analysis are explicitly ruled out. Cronbach et al. produce a 'fully elaborated generalisability theory' (p.388) which, they acknowledge, is stable only if certain prior conditions (e.g. the uniformity of nature) are accepted.

---

[13] The generation of universal rules governing the conduct of science was central to Karl Pearson's The Grammar of Science, (1892) and to his subsequent work as a statistician. Pearson's views were echoed in Noam Chomsky's search for a universal 'grammar of...language' (1965, quoted in Donaldson, 1978, p.35). Subsequent criticism of Pearson by social philosophers (e.g. Willer & Willer, 1973) has much in common with recent critiques of Chomsky (e.g. Donaldson, 1978). The parallelism of these critiques is not entirely fortuitous. Both Pearson and Chomsky were primarily concerned with formal issues of internal logic rather than with historical questions about the genesis and development of knowledge and language.

In summary, the received view of generalisation rests on three assumptions: first, that nature is uniform in time and space; second, that closed populations can be unambiguously defined; and third that the defining attributes of a population are shared by all its members.[14]

The received view is a special rather than a general theory. It offers a model for extrapolating from known to knowable instances. It relates, therefore, primarily to the present. To reach beyond the proximate and the present is to move beyond a 'steady state' view of generalisation (Cronbach et al., 1973, p.363) and switch, instead, to populations that are 'hypothetical' (Toulmin, 1971) and 'open' (Hacking, 1965, p. 122) rather than 'logical' and 'closed'. Research for today's schools is one thing, Research for Tomorrow's Schools (Cronbach & Suppes, 1969) is something different.[15]

GENERALISATION AND THE CRAFT VIEW

If the logical or 'received' viewpoint hinges upon a rule-governed approach to generalisation, the cognitive viewpoint presents generalisation more as a subjective, craft activity - a 'natural logic' (cf. Piaget, 1971, p.223) that is not reducible to formal logic (see Bruner, Olver & Greenfield, 1966, p.2; and Wason & Johnson-Baird, 1972, p.245).

---

[14] Biology provides examples of populations whose members do not share the same attributes. A biological species can be defined as an interbreeding population. Yet, in practice, the dispersion of the species members may mean that only adjacent sub-species can interbreed. Thus, although members of a population can be grouped together on genetic (i.e. developmental or evolutionary) grounds, they need not share the same inter-breeding attributes (see Parker, 1956). (An extended discussion of the relationship between 'genetic' and 'formal' populations can be found in Ilyenkov, 1977, pp.344-354).

[15] The fact that 'steady state' statistical reasoning is restricted to the present should be set against Topolski's claim that 'only the past and future exist whereas the present is (merely) a conventional concept' (1976, p.224).

It stresses, for instance, the importance of history and culture; and the relevance of psychology to the study of scientific thought.

Generalisation is deemed to be 'naturalistic' rather than 'formal' (Stake, 1978, p.6). It is held to be a resonance phenomenon created through the medium of 'thick' descriptions (Ryle, quoted in Geertz, 1971, p.6) and 'non-fiction' novels (Capote, quoted in Smith & Geoffrey, 1968, p.252). It can be defined as the act of perceiving commonalities among empirically different (but conceptually equivalent) human experiences.[16] From a craft standpoint, then, generalisation is taken out of the realm of rationality-as-logic and located in the realm of rationality-as-cognition.

The separation of logic from cognition underpinned the fragmentation of the late nineteenth century social sciences; and the relationship between the two domains is still controversial (see, for instance, Cole & Scribner, 1974; McIntyre & MacLeod, 1978; and Anglin's comparison of Bruner & Piaget, 1973). To follow twentieth century western philosophy and present logic and cognition as separate entities is to perpetuate outmoded divisions and weaken the power of systematic enquiry. Similarly, to emphasise cognition at the expense of logic is to run the risk of surrounding research with a set of inaccessible mystifications (e.g. 'personal knowledge', 'insight', 'intuition')-thereby creating a new specialist knowledge and a new hierarchical and elitist social framework for research.[17] The real problem is not solved by inverting the hard/soft continuum or reversing the cognitive/logical polarity but, rather, by abandoning them.

---

[16] The most important insight rendered by cognitive psychology is that generalisation is as much about overcoming (or suppressing) perceptual differences as it is about comprehending attributes held in common.

[17] To criticise the use of 'personal knowledge' etc. in research is not to argue for a return to behaviourism. The problems of establishing research as 'systematic inquiry made public' and of translating understanding into explanation (or 'private knowledge into public discourse') are discussed at length in Stenhouse (1978) and Kemmis (1976).

TOWARDS A SCIENTIFIC VIEW OF GENERALISATION

Just as recent developments in statistical theory have tried to go beyond the uniformity of nature assumption (see Hacking, 1965, passim), so certain branches of psychology have tried to provide inside-the-head models that might account for naturalistic observations of human activity (e.g. Blakemore, 1977, Luria, 1973, Piaget, 1971).[18] In the process, bridges are built between probability and history, between thought and physiology, and between culture and cognition.

The scientific study of generalisation straddles neurology, psychology, logic and linguistics. To group sense data into categories is to identify logical relationships (e.g. school/not school) and generate concepts; to group concepts into schemata is to codify information and generate theory; and to generate theory is to 'make' sense through the rendering of an account; and to render an account is to communicate by symbolic means (e.g. words) about events that are (or may be) remote in time and space.[19]

From such a perspective generalisation is more than a matter of linking samples and populations.[20] It is directly analogous, for instance, to 'interpretation in context' (Cronbach, 1975, p.123).[21] The interpreter or generaliser actively creates new frameworks and understandings to incorporate novel experiences.[22] The process is never completed. Data-based theoretical conjectures remain provisional - to be tested retrospective against earlier results and prospectively through further action.

---

[18] The boundaries between logic and cognition have also been the subject of intensive scrutiny in artificial intelligence research (cf. Simon's concern with programming computers to 'think in the same unsystematic, inductive, heuristic ways that human beings think', 1977, pp. 265-266).

[19] The relationship between language and generalisation is aptly demonstrated in Fischer's 'Logic of Historical Thought': 'Scholars still solemnly engage in controversies over questions such as "should a historical generalise?". One might as well ask "should a historian use words?" ' (1971, p.103).

[20] It is true, of course, that generalisation can be regarded as the 'central problem' of statistical theory (Hays, 1963, p.7). Typically, however, the issue is solved by handing it over to statisticians interested primarily in theory. Theory and practice end up as separate problems. Whenever fieldwork takes a similar stance, it becomes liable to same historical fate.

Two assumptions can help to build an holistic approach to generalisation. First, that the future need not be like the past; and second, that generalisations are derived from, and tested by, purposive human activity. To endorse the first assumption is to acknowledge rather than conceal the 'open' nature of research and action. To adopt the second assumption is to treat the objectivity (or truth) of generalisations as more of a practical than a theoretical question.

The holistic approach contrasts with the received view. The latter justifies its procedures by the canons of formal logic, and professed its objectivity via the doctrine of intersubjectivity (see Kuhn, 1962, p.3; and Scriven, 1972).[23] The received view regards consistency and consensus (rather than history and practice) as the final arbiters of truth. The search for consensus necessarily suppresses minority viewpoints. It reinforces the dominant view and, in the process, stabilizes the conduct of 'normal' science (Kuhn, 1962, chapter 1). Further, when theory and practice reinforce each other in the interests of internal consistency, research becomes a routinized, self-validating activity. Investigations become enmeshed in circular arguments and drift slowly away from their object - the social activity of human beings.[24]

---

[21] In 'Beyond the two disciplines of scientific psychology' (1975) Cronbach contrasts 'interpretation in context' with 'generalisation' (p.123); and advocates methods that are 'historical more than scientific' (p.125). The purpose of this paper is to find a formulation whereby such distinctions can be dissolved.

[22] In Leach's analogy, the generalisers (and the interpreters) are not concerned to distinguish wrist watches from grandfather clocks but, instead, to grasp the essential features of clockwork (Leach, 1961, p.6).

[23] In his review of the 'fallacy of inter-subjectivism' Scriven draws attention to the fact that the traditional subjective / objective distinction in social research is closely related to a dualistic split between the mental and the logical (1972,p.116).

Fortunately, stagnation does not last indefinitely. Various factors - economic, political, social and demographic - cause its disruption. Indeed, the history of science (including educational research) is an account of these successive interventions and transformations.

Nevertheless, intellectual critiques are not a sufficient condition for the creation of more adequate standpoints. The advancement of a new or greater logic is also a requirement. Historically, the most significant breakouts have been fostered by those who have stressed the power of thought and/or action in the conduct of human affairs. In the Renaissance, for instance, Francis Bacon attacked the (then) dominant research algorithm - syllogistic logic - and argued for its replacement by procedures which hinged on interaction with the external world rather than upon the exegesis of Aristotelian texts.[25]

Bacon's heirs can be located at various points on the thought/action dimensions. They include philosophers who have given priority to experience (e.g. J.S. Mill), insight(e.g. Whewell) and action (e.g. Pierce). Despite important difference and shortcomings, these philosophers regarded the creation and growth of knowledge as a practical and cognitive rather than a logical or algorithmic question (see McClellan, 1961; and Henle, 1962). They did not abandon traditional logic but among other things, gave it the auxiliary role of providing grounds for maintaining the public reasonableness or defensibility (but not the absolute truth) of scientific propositions.

---

24. The search for scientific consistency is most clearly identified with the doctrine of operationalism - a viewpoint which holds that a concept can be defined in terms of a particular set of measurements. The definition of intelligence as 'what intelligence tests measure' is probably the most famous operational statement in educational research. Operationalism is the ultimate convergence of theory and practice. It is usually responsible for the kind of research that reports in such terms as: 'chalk and talk teachers tend to stand nearer the blackboard'.

25. Despite a gap of 350 years, Bacon's suggestion that scientific enquiries should build upon 'natural and experimental (i.e. observational) histories' (quoted in Losee, 1972, p.64) is not very far from Cronbach's call for 'historical' interpretation based on 'intensive local observation' (p.125).

SUMMARY AND CONCLUSIONS

This essay has tried to locate field-based methodologies in the current context of educational research. It has focused upon the emergence and divergence of two different usages - 'logical' and 'cognitive' - of the term generalisation. The major thrust of the argument is that the apparent inability of field-based research to justify itself against the canons of psychostatistics is not so much due to the weaknesses of the former but, rather, due to the limitations of conventional statistical reasoning. A more adequate source of justification for field research lies in the assumption that generalisation is, at root, a practical activity concerned with interpreting 'open' rather than 'closed' systems. The analysis of closed populations is not separate from fieldwork but can be seen as a special case of a more general logic to which science aspires (see Elton, 1977).[26]

Fieldwork, then, should no longer be regarded as one among many separate-but-equal methodologies. Likewise, there is no requirement that it should occupy a marginal position in the scientific constellation. As noted earlier, its problems are about 'going beyond the information given' and are therefore common to all science. Nevertheless, science is not judged by its methods but by its practical and theoretical outcomes. Methodologies will be deemed appropriate not simply on the basis of their internal characteristics but also on their ability to render the world more accessible to its inhabitants. As currently practised field-based methodologies may or may not foster such goals. Like psychostatistics, they may be tempted to deny the relevance of history and human action and offer, instead, elegant but closed solutions. On the other hand they may be able to offer a more sensitive, open prospect which, in the long run, might be a better scientific tribute to the common and collective experiences of humanity.

---

[26] The 'larger logic' which comprehends history, logic, and cognition is sometimes known as 'dialectical logic' (see, for instance, Feyerabend, 1971; Fox & Hernandez-Nieto, 1977; Ilyenkov, 1977; Orudzhev, 1977; Sjoberg & Nett, 1968, passim; and Topolski, 1976, pp. 197-208). The principles which govern the operation of dialectical logic are sometimes referred to as 'heuristics' (see the review in Landa, 1976, chapter 5). Although dialectical logic and heuristics might be considered central to the philosophy of science, they have received very little attention from the received view. As with field-based methodologies, they have taken shape in a piece-meal and relatively uncoordinated manner. A full discussion is, therefore, beyond the scope of this paper.

Acknowledgement

The author would like to thank the following for their comments on earlier drafts of this paper: Peter Breeze, William Dunn, Neil Johnston, Stephen Kemmis, Jack Levin, Gail McCutcheon, Margaret Reid, David Williamson and members of a research seminar at the University of Stirling.

* * * * * * * * *

References

Adelman, C, Jenkins, D. & Kemmis, S. Re-thinking case study: notes from the second Cambridge Conference. Cambridge Journal of Education, 1976, 6, 139-150.

Anglin, J.M. Introduction. In J.S. Bruner, Beyond the Information Given, London: George Allen & Unwin, 1974, pp. xiii-xxiv.

Blakemore, C. Mechanics of the Mind. Cambridge: Cambridge University Press, 1977.

Bruner, J. Going Beyond the Information Given. In J. Bruner, Beyond the Information Given: studies in the psychology of knowing. London: George Allen & Unwin, 1974, pp. 218-238 (originally published in 1957).

Bruner, J.S., Olver, R.R. & Greenfield, P.M. Studies in Cognitive Growth. New York: John Wiley & Sons, 1966.

Campbell, D. T. "Degrees of Freedom" and the case study. Comparative Political Studies, 1975, 8, 178-193.

Campbell, D.T. & Stanley, J.C. Experimental and Quasi-experimental designs for research in teaching. In N. Gage (Ed.) Handbook of Research on Teaching, Chicago: Rand McNally, 1963, pp. 171-247.

Cole, M. & Scribner, S. Culture and Thought: a psychological introduction. New York: John Wiley, 1974.

Cronbach, L.J. The two disciplines of scientific psychology. American Psychologist, 1957, 12, 671-684.

Cronbach, L.J. Beyond the two disciplines of scientific psychology. American Psychologist, 1975, 30, 116-127.

Cronbach, L.J. Research on classrooms and schools: formulation of questions, design and analysis. Stanford: Occasional paper of the Stanford Evaluation Consortium, 1976.

Cronbach, L.J. & Suppes, P. (Eds.) Research for tomorrow's schools: disciplined inquiry for education. London: Collier-Macmillan, 1969.

Cronbach, L.J., Gleser, G.C., Nander, H. & Rajaratnam, N. The dependability of behavioral measurements: theory of generalisability for scores and profiles. New York: John Wiley & Sons, 1972.

Dearden, G. & Laurillard, D. Medical school study: progressive focusing on critical issues. In M. Parlett & G. Dearden (Eds.) Introduction to illuminative evaluation: studies in higher education. Cardiff-by-the-Sea, California: Pacific Soundings Press, 1977, pp.49-54.

Diesing, P. Patterns of discovery in the Social Sciences. London: Routledge & Kegan Paul, 1972.

Donaldson, M. Children's minds. London: Fontana/Collins, 1978.

Elton, L. Methodological themata in educational research. Research Intelligence (British Educational Research Association Bulletin), 1977, 3, No.2, 36-39.

Feyerabend, P.K. Against method: outline of an anarchistic theory of knowledge. In M. Radner & S. Winokur (Eds.) Analyses of theories and methods of physics and psychology. (Minnesota studies in the philosophy of science, Vol. IV). Minneapolis: University of Minnesota Press, 1970, pp. 17-130.

Feyerabend, P.K. Against method. London: New Left Books, 1975.

Fienberg, S.E. The collection and analysis of ethnographic data in educational research. Anthropology & Education Quarterly, 1977, 8, 50-57.

Fischer, D.H. Historians' fallacies: towards a logic of historical thought. London: Routledge & Kegan Paul, 1971.

Fisher, R.A. (1950) Quoted in D.K. Whitla (Ed.) Handbook of measurement and assessment in behavioral sciences. Reading, Massachusetts: Addison-Wesley, 1968 p.xvii.

Fox, G.T. & Hernandez-Nieto, R. Why not quantitative methodologies to illuminate dialectical or phenomenological perspectives? Paper presented at the annual convention of the American Educational Research Association, New York, April 5th, 1977.

Geertz, C. The interpretation of cultures. London: Hutchinson, 1975.

Glaser, B. & Strauss, A. The discovery of grounded theory. Chicago: Aldine, 1967.

Hacking, I. Logic of statistical inference. Cambridge: Cambridge University Press, 1965.

Hacking I. The emergence of probability. London: Cambridge University Press, 1975.

Hays, W.L. Statistics for psychologists. New York: Holt, Rinehart & Winston, 1963.

Henle, M. On the relations between logic and thinking. Psychological Review, 1962, 69, 366-378.

Hesse, M. The structure of scientific inference. London: Macmillan, 1974.

Ilyenkov, E.V. Dialectical logic. Moscow: Progress publishers, 1977.

Jackson, P.W. Life in Classrooms. New York: Holt Rinehart & Winston, 1968.

Kemmis, S. The problem of attainment: private knowledge and public discourse. Centre for Applied Research in Education, University of East Anglia, 1976 (mimeo).

Kemmis, S. The imagination of the case and the invention of the study. University of East Anglia Centre for Applied Research in Education, 1977 (mimeo).

Kuhn, T.S. The structure of scientific revolutions. Chicago: University of Chicago Press, 1962.

Landa, L.N. *Instructional regulation and control: cybernetics, algorithmization and heuristics in education.* Englewood Cliffs, New Jersey: Educational Technology Publications, 1976.

Leach, E.R. *Rethinking anthropology.* London: Athlone Press, 1961.

Losee, J. *A historical introduction to the philosophy of science.* London: Oxford University Press, 1972.

Lukes, S. Methodological individualism reconsidered. In D. Emmet & A. MacIntyre (Eds.) *Sociological theory and philosophical analysis.* London: Macmillan, 1970, pp.76-88.

Luria, A.R. *The working brain.* Harmondsworth: Penguin Books, 1973.

Maistrov, L.E. *Probability: a historical sketch.* New York: Academic Press, 1974.

McClellan, J.E. The logical and psychological: an untenable analism. In B.O. Smith & R.H. Ennis (Eds.) *Language and concepts in education.* Chicago: Rand McNally, 1961, pp. 144-160.

McIntyre, D. & MacLeod G. The characteristics and uses of systematic classroom observation. In R.McAleese & D. Hamilton (Eds.) *Understanding classroom life.* Windsor, England: National Foundation for Educational Research, 1978, (in press).

Mehan, H. Structuring school structure. *Harvard Educational Review*, 1978, *48*, 32-64.

Orudzhev, Z.M. Some problems of dialectical logic. In *Philosophy in the USSR.* Moscow: Progress Publishers, 1977, pp.235-257.

Parker, H.W. Species transgressions in one horizon. In P.C. Sylvester-Bradley (Ed.) *The Species Concept in Palaeontology.* London: The Systematics Association, 1956, pp. 9-15.

Parlett, M. Evaluating innovations in teaching. In H.J. Butcher & E. Rudd (Eds.) *Contemporary problems in higher education.* London: McGraw-Hill, 1972, pp. 144-154.

Piaget, J. *Biology and Knowledge: an essay on the relations between organic regulations and cognitive processes.* Edinburgh: Edinburgh University Press, 1971.

Schatzman L. & Strauss, A.L.	*Field research: strategies for a natural sociology*. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.
Scriven M.	Objectivity and subjectivity in educational research. In L.G. Thomas (Ed.) *Philosophical redirection of educational research* (71st Yearbook of the National Society for the Study of Education, part I). Chicago: University of Chicago Press, 1972, pp. 94.142.
Simon, H.A.	*Models of discovery*. (Boston Studies in the philosophy of science volume 54). Dortrecht-Holland: Reidel, 1977.
Sjoberg, G. & Nett, R.	*A methodology for social research*. New York: Harper & Row, 1968.
Smith, L.M.	An evolving logic of participant observation, educational ethnography and other case studies. In L. Shulman (Ed.) *Review of Research in Education.* Chicago: Peacock Press, 1978 (in process).
Smith, L.M. & Geoffrey, W.	*The complexities of an urban classroom: an analysis toward a general theory of teaching*. New York: Holt, Rinehart & Winston, 1968.
Stake, R.E.	The case study method in social inquiry. *Educational Researcher*, 1978, *7*, 5-8.
Stenhouse, L.	Applying research to education (paper read at the 1978 Annual Conference of the British Educational Research Association). Centre for Applied Research in Education, University of East Anglia, 1978 (mimeo).
Suppe, F.	The search for philosophic understanding of scientific theories. In F. Suppe (Ed.) *The structure of Scientific Theories*, Urbana: University of Illinois Press, 1974, pp. 3-232.
Tavanec, P.V. & Svyrev, V.S.	The logic of scientific knowledge. In P.V. Tavanec (Ed.) *Problems of the logic of scientific knowledge*. Dortrecht-Holland: Reidel, 1974.
Theobald, D.W.	*An introduction to the philosophy of science*. London: Methuen, 1968.

Topolski, J. Methodology of history. Dortrecht-Holland: Reidel, 1976.

Toulmin, S. From logical systems to conceptual populations. In R.C. Buck & R.S. Cohen (Eds.) Boston Studies in the philosophy of science Volume 8. Dortrecht-Holland: Reidel, 1971.

Walker, R. The conduct of educational case studies: ethics, theory and procedures. Centre for Applied Research in Education, University of East Anglia, 1974 (mimeo). To appear in W.B. Dockrell & D. Hamilton (Eds.) Rethinking Educational Research. London: Hodder & Stoughton, (in press).

Walker, R & Adelman, C. Strawberries. In M. Stubbs & S. Delamont (Eds.) Explorations in classroom observation. London: John Wiley & Sons, 1976, pp.133-150.

Wason, P.C. & Johnson-Laird, P.N. Psychology of reasoning. London: Batsford, 1972.

Willer, D. & Willer, J. Systematic empiricism: critique of a psuedoscience. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.

Winch, P. The idea of a social science. London: Routledge & Kegan Paul, 1958.